AMERICAN AGRICULTURIST,

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—Washington.

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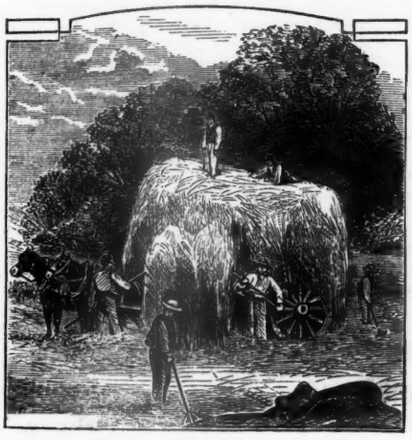


July.

"Ye swains, invoke the powers who rule the sky,
For a moist Summer and a Winter dry;
For Winter drought rewards the peasant's pain,
And broods indulgent on the buried grain.
Hence Mysia boasts her harvests, and the tops
Of Gargarus admire their happy crops.
Then when the suns too fiercely play,
And shriveled herbs on withering stems decay,
The wary plowman, on the mountain's brow,
Undams his watery stores; huge torrents flow,
And rattling down the rocks, large moisture yield,
Tempering the thirsty fever of the field."—Virgil.

We are again amid the fervid heats of July, the hottest and oftentimes the dryest month of the year. One now only needs to look over the parched fields, especially in a dry season, to understand the need of irrigation. Even in seasons of average moisture we could use to advantage many times the quantity of water that falls from the clouds. It would always make the hay crop a certainty, and often quadruple the yield of grass in the irrigated fields. It was not strange that the Romans living under the bright skies of Italy, early found the advantage of damming their mountain streams, and turning them at pleasure upon the meadows below. It would seem from the account of Virgil, that whole districts were famous for the crops procured mainly by this method. Irrigation must have been an art well understood long before the Christian era. Is it not strange that in a climate quite as much subject to drouth as that of Italy, irrigation should be almost unknown among us? With a climate that demands it, and with unrivaled facilities for its practice, in most of the northern States, not one farmer in a thousand has availed himself of the treasures of water within his reach. Nothing could better show the neglect of agriculture among us as an art than this fact. Few people are more ingenious than ours, or more quick to take advantage of the facilities which Nature offers to save labor and to create wealth. We abound in all useful inventions and labor-saving machines. We dam streams to turn innumerable wheels for manufacturing purposes; to make fish ponds, and adorn our ornamental grounds; to make model lakes and raise our annual crop of ice, for the delight of Europe and the Indies. But how rarely is a stream turned from its course to fertilize the land and increase our harvests.

Few have any conception of the value of water as a fertilizer. Many turn the streams made by rains in the highways into the adjacent fields, but they attribute all the increased luxuriance of the grass to the matter deposited. No doubt street refuse, such as the rain washes into the meadow, is an excellent fertilizer, but the rain itself contributes to the result. Far beyond the line of deposit, you see the effects of the water.

Just how the water operates to fertilize the soil we may not be able to state. Of the fact there can be no doubt. We see the power of water to make crops in every drouth that comes. There are fields of light gravelly soil, whose crops of grass are nearly doubled in wet seasons. It is pretty safe to infer that water makes the difference. Water is a powerful solvent, and helps the decomposition, not only of vegetable fiber in the soil, but of its mineral constituents. You can not wash a stone so clean that water will not act upon its surface, and after a few hours wash away something more from it. It is probable that the water is all the while preparing plant food from the soil where it is present, and of course the more of it we pass through the soil, the more nourishment the roots of plants are enabled to take up.

We have recently examined two small valleys, flowed for skating during the winter, and drawn off in early Spring. In both you can detect the water line in winter by the greater luxuriance of the grass. Both streams that fed these ponds are dry, or nearly so, in summer, and never carry any very large volume of water. The basins that contain the water are small, and mostly covered with grass, so that they are rarely turbid even in rains. There is little appearance of sediment when the water is drawn off in the spring, and it is nearly certain that the beneficial effect is mainly owing to the presence of water in the winter season. If the water helps the grass crop under these unfavorable circumstances, it must help it much more when it bears a rich deposit, and is applied at the growing season.

We have in this State two examples at least, of the successful application of irrigation to farms—that of A. B. Dickinson, of Steuben Co., and L. D. Clift, of Putnam County; accounts of which were published in the Agricultural Transactions for 1855. In both these cases, the method is simple and the expense not beyond the means of most thriving farmers who have streams convenient for this purpose. In both, the results are all that could have been anticipated. The method is to dam the stream at a point above the lands to be watered, and to turn it on at pleasure, by means of a gate and channels of distribution. These main channels are furnished with side conduits which are merely furrows made with the plow and having just descent enough to carry the water. When the water is turned on these channels overflow, and the water is distributed over many acres.

Mr. Clift pursues his irrigation even in Winter, and it is this feature probably that will be looked upon with more hesitation than any others. The water freezes sometimes as it flows, making a broad field of ice a foot or more in thickness, where it remains until dissolved by the suns of Spring. It is probable that the ice affects the soil thus protected just as the ice-covered pond does. It is completely shielded from the alternate thawing and freezing; the frost does not strike in deeply, and comes out very early in the Spring. It is his testimony that "the grass in all such places is first in Spring, and grows with great rapidity." He also improves other seasons when the stream is charged with sediment, and spreads it over the land as a top dressing. Besides the sediment which is carried in the water, a good deal collects in the bottom of the pond, which is carted out when the water is drawn off, and makes excellent manure. This is spread upon portions of the field that receive the smallest supply of water. He cuts about a hundred tuns of hay on forty acres of land, which is certainly double the average for the mowing land of the state, and uses no other manure.

Mr. Dickinson makes great account of increasing the natural deposit of sediment by artificial means. He plows and harrows land that is to be overflowed, and stirs up the soil after it is under water to make it very muddy. Even the subsoil that is thus spread over grass land is found to be an excellent fertilizer. His grass crops are enormous, and the best possible commentary upon his method of irrigation.

Now we have thousands of farms all over the country quite as well, or even better situated for artificial watering than these. In many cases a few days' labor by the ordinary working force of the farm would make a pond and the necessary channels for watering a few acres. The work once begun would demonstrate its economy and lead to the watering of all the available portions of the farm. Lands that are now an encumbrance, hardly paying taxes, might be brought into a high state of productiveness. We call the attention of our readers to this very important topic at this season, when the scythe sweeps so many acres prolific in five-finger and briars, but poor in grass. Cheap and careless irrigation pays, and the more systematic and perfect it is, the better it pays, as a general rule. Use our streams rightly, and we shall find them richer than Pactolus, plowing over golden sands.

Calendar of Operations for July, 1862.

[A glance over notes like the following will generally call to mind some piece of work that would otherwise be forgotten or neglected. The remarks are more especially adapted to places between 38° to 45°; but will be equally applicable further North and South, by allowing for latitude.]

Farm.

Clear the deck for action. The great fight of the year is now close at hand—with many of our readers already begun. When the grass is fit to cut, haying must take the precedence of every thing else. The few days of cultivation that remain should be improved to the utmost. Keep the horse hoe and cultivator moving until the corn is too large to allow the horse to pass. Hoeing even to the time of silking pays. The stirring of the soil not only destroys weeds but admits air and moisture freely to the roots of plants. Cloudy days can sometimes be improved in hoeing, even to the last of this month.

It is miserable economy to undertake haying with a short supply of help. There is less need of it now that we have the help of the horse in mowing and reaping. The mowers and reapers have reached almost every neighborhood, and the small farmer who does not wish to buy a machine, can hire his work done with one. This saves the muscles and money at the same time. It puts the hay into the barn just at the time when it is worth the most for fodder. A single day of overwork under a burning sun, sometimes lays a man up for a month. Hired labor will pay in the hay harvest, if at any time.

Barns and Sheds should be put in order immediately, if not ready to receive the new mown hay. There should be barn room enough for all the hay made upon the farm. As grain is now so generally thrashed soon after harvest, it is of less importance to put it under cover. If stacks must be built, make them very large, and remove them to the barn in the Winter for feeding out. We hope to see the practice of foddering at the stack-yard banished from the northern farm. It is hard on the cattle, and still harder on the farmer's purse.

Buckwheat—Sow a large breadth of this if there is likely to be any deficiency in the other grains. Read article on page 205.

Butter—Nothing requires nicer handling than this article. Perfect cleanliness in the utensils and thorough working, so that all the buttermilk is expelled, will add several cents a pound to the market value. A cool spring in the milk room is of great value in this business. Every dairy farmer ought to have an ice-house. With this he can always manage the temperature of the milk and bring his butter to market in the best condition. Sour milk and whey should be kept at a safe distance from the milk.

Cabbage should be more largely cultivated upon the farm. It is a good succession crop to early potatoes, and does well oftentimes, where from any cause the first crop fails. They may be planted at once in the hills where they are to grow, or transplanted from the seed bed a little later. It is of great value as a succulent fodder for cows, and will last well stored until Spring. It is excellent for pigs and poultry.

Cheese can be made where the facilities for making butter are not first-rate, or on farms too remote to admit of weekly marketing.

Draining is an item of business always on hand, when other things are not pressing. Drains are best laid in dry weather, and if we could have our choice of seasons we would always take Summer and Fall. Improve any leisure between hay and oat harvest to make drains. The proofs of the profitableness of this business are so clear when we have once begun, that it is rarely abandoned, until the farm is sufficiently drained.

Fences will need little attention, if they were thoroughly repaired in the Spring. The inclosed grain and clover fields will need looking after to guard them against cattle.

Grass and Clover Seed—Now is the time to secure clean seed of the best quality. You know what you raise. It is not always so clear what you buy, until it is too late. Select the cleanest piece of grass, clean out all the weeds, and you will have only what you want to grow.

Haying will commence in this latitude early in July. Begin with the clover and cut as the different fields are passing out of bloom. The indication of cutting time is, with many, when half the heads are turned brown. Clover makes the best hay in the cock, with only partial sun drying. Other grass is generally dried too much. With the hay caps, we may take our time in hay-making, and cure more in the cock, than we used to. Banish the whiskey jug and allow ample noonings. If stacks must be made, lay rails or other lumber to keep the hay from the ground.

Hay Mows—Ventilate by means of ducts, made by using grain bags filled with hay, set in the middle of the mow at the bottom, and gradually drawn up as the mow increases in hight, the hay being packed tight around them.

Hedge rows and bushes in pastures may be subdued by repeated cuttings in hot weather. The bush scythe is used to best advantage at this season.

Hoeing—Let no weeds grow among the corn, and substitute the horse for the man, as much as is possible, in destroying weeds. Keep the hoe and cultivator very near the surface, lest the corn roots receive damage.

Ladders for the hay mows and lofts, and stacks, should be provided, if not already on hand. They can be made on rainy days. Ladders and hay rigging for the cart, should be put in order. We do not want to repair a broken slat, or supply a missing stake, when a shower threatens, and a load of hay must come in within an hour or be drenched.

Manures—All kinds of vegetable matter, weeds and grass from the swamp and roadside, leaves from the woods, small brush and clods, sea weed and mud, make valuable manure. Gather every thing of the kind that is available, and put it in the compost heap. Either cut before the seeds ripen, or secure thorough fermentation, that there may be no foul seeds in the manure. Sink-spouts and privies will need looking after. There is waste wherever there is the smell of ammonia. Subdue it with plaster, muck, loam, or some other good absorbent.

Mowings—As soon as the grass is cut, spread fine, well rotted manure uniformly upon the surface. It is the best time to manure grass land. If it rains soon, the effect is very great, and at any rate, just as good as if applied at any other time.

Oats—Cut at early maturity, as directed for wheat and rye. Store where there is good ventilation and thrash early. The fall market is sometimes best for oats. At any rate, it saves the depredations of rats, which can not be prevented in the stack and mow.

Pastures—The great trouble is overstocking. They have no change, and no chance to recuperate. Corn, sorghum, rye, and other green crops fed out now, will save the pastures, and in the end secure more feed.

Poultry—Keep them from the grain fields until after harvest, then allow them to glean.

Potatoes—The ground should not be disturbed after blossoming until digging. Dig early varieties as they mature and sow turnips or set cabbages. There is ample time for a good crop of either if manure be used. There is often a difference of fifty per cent in the price of potatoes this month and the next—hence market early.

Rye—Cut before fully ripe, when the grain is passing out of the milky state.

Seed rye, Wheat, etc.—Save the best parts for seed, and leave until fully ripe. Remove all weeds and thrash with flails soon after harvesting.

Sheep—Give good pasture or sell a part of the flock. The profit is in well fed sheep. They can be made efficient helpers in subduing brush pastures. Goats are still better. Visit and salt weekly, and see that they have good water. Watch against the appearance of foot rot.

Soiling Crops—Sow millet and corn to be used for soiling late in the season. If not wanted green, it makes valuable dry fodder. Guard against a scant supply of food Summer and Winter.

Swine will find good picking in the grain fields after the crop is removed. Flesh and fat are made much more economically in warm, than in cold weather. Feed those confined in the pen with corn stalks, and other green fodder. Give water as well as meal. They want plenty of succulent food until frost comes.

Timber cut during this and the following months is considered more durable than that felled in Winter, particularly those kinds that abound in sap. Anticipate the wants of next season by cutting now.

Tanner's Bark—Hemlock and oak bark will "run" during most of July. Peel whenever leisure offers, if you have trees that need cutting. Shelter the bark as soon as it is sufficiently dry.

Tools—Examine before you begin to use them, and see that every nut and bolt is tight. Oil bearings and sharpen knives and cutting tools. Protect all tools from the weather. Improve rainy weather in repairs, painting, etc.

Turnips—Sow largely all vacant places where other crops are removed, and between the rows of corn. Transplant rock and French turnips. There is still time for a good crop. A spoonful of bone dust or superphosphate to each plant will make a crop on almost any tillable land. Cattle are very fond of all kinds of turnips, and thrive on them—the best proof of their value.

Weeds—The pest of the farmer, and the curse of slovenly tillage. Make war on them early and late. Give no quarter. Canada thistles, snapdragon, briars, high and low, live forever, wild mustard, dock and burdock, white weed and Johns-wort, wild carrot and daisies, their name is legion. Do not let one of them go to seed. Buckwheat is a good cleansing crop on foul land. Till thoroughly among all hoed crops. Cut grass early before the seeds of weeds ripen. Sprinkle salt on Canada thistles after the stalks are cut, so the cattle may crop them close.

Wheat—Cut as directed for rye. Keep the grain clean if intended for seed. It is a moral offence, dishonesty, to sell foul seed with the wheat. It justly affects the market price, even more than the cost of its removal.

Orchard and Nursery.

There is not much to be done in the orchard this month, if former directions given in the *Agriculturist* from time to time, have been followed. Early in July is a good time to prune both in the orchard and nursery. The rapid growth of new wood will soon heal over small wounds, and the wood will season firm and hard where large limbs are removed. Neglected orchards should by all means receive a good but judicious trimming now, and young trees will be improved in appearance and rendered more fruitful by heading back the most luxuriant branches. Do not allow suckers about the trunks or on the limbs, to rob the trees of their needed food, and see that only the cions are allowed to grow in those branches which were grafted in the Spring. After trees have attained considerable size, it is better to keep the orchard under tillage, plowing lightly and harrowing frequently during the Summer, but do not depend upon a crop of anything but apples. The orchard is not often sufficiently manured to yield a crop of fruit, make a good wood growth for future bearing and give a crop of grain, corn, potatoes, or even grass beside. By no means allow a strong turf of grass to grow about the roots of young or newly planted trees; the grass will appropriate moisture and food needed by the trees.

Cherries are now ripe, and the crop is abundant in most parts of the country, too much so to warrant sending a long distance to market. Dry and bottle freely for Winter and Spring use. Save pits for nursery planting, mixing with earth in open boxes, and set them in an outbuilding or expose to the weather.

Thin the fruit of young trees, especially on the newly planted dwarfs. It is better to remove the whole from trees set last Spring, as the tax upon the vital powers of the tree caused by transplanting is quite sufficient without the extra effort required to perfect fruit.

The nurseryman will begin to bud plum, cherry and pear trees by the middle of the month. Use every precaution in securing true sorts, and mark the rows carefully. Insert the buds close to the ground. It is not necessary to remove the wood from the bud, except in budding on dwarf stocks. Stocks budded last season, may now be rounded off close to the growing bud. See that all suckers are removed. Read article on page 209.

Inarching may now be performed on both deciduous and evergreen trees. Layering is also in season, on old and new wood. With grape vines and other climbing or running plants use the new growth, while quinces and shrubby plants in general do better with wood of the previous season's growth.

Insects are now troublesome, unless they were kept in check as advised last month. Continue to dust plum trees with lime, or syringe with soap and water, or the mixture recommended on page 177 last month, to repel the curculio. Make friends of the birds, even if they do take a few cherries. This is the best season in which to destroy scale. The old shells have fallen off and the small dust-like specks, which are the recently hatched eggs, are readily removed by strong soap suds, or potash and water—one pound of potash to a gallon of water, applying with a scrubbing brush.

Plow or run the horse-hoe between the nursery rows, and use the hand-hoe to keep down weeds.

Kitchen and Fruit Garden.

It is a luxury to see things grow now. The change is visible from day to day. The peas are in their glory, the beans blossoming, the tomatoes full of green fruit, and the corn beginning to tassel. Follow up every department of the garden with the hoe and the watering pot. Make the most of the sink spout and other sources of liquid manure. Water newly set trees, and dwarf pears and grapes, keeping the mulch moist. Nothing will swell the fruit like liquid manure. Keep down the weeds and leave no spot vacant. We may as well have two or three crops as one.

Asparagus—The cutting season is over, and the plants should be stimulated, to repair the damage of the repeated cropping. Clear of weeds and give a good dressing of stable manure or compost, an inch or two thick.

Beans—Gather for use as they fill. Early beans may still be planted for a late crop of string beans, or for seed. They make an excellent pickle.

Beets may still be planted for Winter use. Hoe frequently, and thin to eight or ten inches in the row. They bear transplanting as well as a cabbage. Any surplus will be good for the cow and pigs, if not for greens.

Blackberries—Tie the new shoots to the trellis or stakes. Shorten in the main stem and branches to help the forming of fruit buds, and pull up small canes unless you wish to multiply them. Branches heavily laden with fruit should be carefully and securely tied up.

Cabbage and Cauliflower—Still sow and transplant for late crops. There is always a large home market for these and for turnips. If the stumps are left where the heads are cut for table use, a large amount of succulent food will grow for fall feeding.

Celery—Transplant until the last of the month for late crop. Hoe and water often. The more water the better, if there is good drainage. The excellence of this vegetable depends upon rapid growth. (See page 213.)

Corn—Still plant sweet corn for late use, and for drying. What is not wanted for the table, will find a ready market in the pig and cow yards.

Cucumbers may be planted for pickling. Guard against insects, and hoe and water until the vines cover the ground. Pickled cucumbers with good cider vinegar are wholesome, used in proper quantities.

Currants—Gather as they ripen and eat freely every day, from the bush and for dessert. They are one of the best safeguards against fevers and summer complaints. They should be ripe for jellies, and fully matured for wines and preserves. The bushes may be pruned, cutting out old wood as soon as the fruit is gathered. The juice preserved and bottled, makes the basis of a refreshing beverage. This fruit is so easily grown and is so healthful that every farmer should have a full supply. Watch against the currant aphis, scale, and the borer.

Egg Plants—Keep well hoed, and forward by stimulating manure, lest the frost cut them off.

Endives—Sow first of the month. (See article on p. 213.)

Espaliers, or trees trained to trellises or against walls are ornamental and more productive. They need to be pinched in, and where that has been neglected, superfluous wood should be cut out. Thin the fruit where much has set. Size and quality will both be improved.

Gooseberries are by far too rare in the farmer's garden. The first pickings make good sauce and pies. The later are fair eating from the bushes and at dessert. Keep mulch around them to prevent mildew.

Grapes—Continue to thin out and pinch back the shoots. Thin the bunches to one or two on a shoot. One gives the best fruit. A crop is frequently spoiled by the inexperienced, by leaving too much fruit to ripen. Also thin the bunches, removing small and imperfect berries. Keep the border free from weeds and all other crops. Grapes are enough for one piece of ground. Mulching and liquid manure are beneficial, until the fruit begins to turn. In Summer pruning, the new shoot that is to bear the fruit should be left to grow, until it is two or three leaves beyond the last bunch. From two to four bunches will set on a shoot if the vines are vigorous. Nip off the shoot at the third leaf beyond the last bunch, as soon as the berries are of the size of small peas. If the vines are young, not more than one bunch should be left to mature. In old vines two may be left, the lowest bunches. The uppermost bud in the axil of the last leaf will soon start. This should be left to grow a while, and then be pinched off, leaving but a single leaf. The bud by this leaf will start after a little while, and the pinching process is to be repeated. At the base of every leaf-stalk such shoots (called "laterals"—by the Germans, "thieves") may start, and if allowed to grow, will destroy the main bud, which forms at the base of each leaf. Treat them as directed for the leading bud. Pinching in the laterals ensures well matured buds for the next year's fruit, and though the process involves considerable labor, it secures the most perfect grapes.

Herbs—The best are dried in the shade, and preserved in boxes that will hold their aroma. Cut while in bloom.

Hoeing is a substitute for manure and water, and is always in order, until the plants cover the ground.

Insects require the constant attention of the gardener. They are alike destructive to fruits and vegetables, and should be trapped by all possible methods. Study their habits and experiment to destroy them. Encourage the presence of birds, toads and chickens. After this month chickens will do little harm in the garden, and will live mainly upon insects.

Lettuce is very refreshing at this season, and should be much more generally used than it is. Grow the kinds that head well, and still plant for a succession.

Manure all backward plants by top-dressings and manures in solution. You can drive a plant as easily as a pig, if you only know how. With plenty of manure, there is no need of a lagging garden. A shovelful of poultry droppings dissolved in eight gallons of water will make a good persuasive to all reluctant plants.

Melons—Cultivate as cucumbers. Put a board or flat stone under them as they grow large.

Mushrooms—Prepare the materials for late beds, according to former directions. See article on page 213.

Onions—Weed and cultivate without drawing the dirt around the bulbs. If the maggot trouble the plants, try a weak solution of oil soap, say a pound to eight gallons of water. Apply with a watering pot. Thin the plants, if you desire very large onions. Seed may still be sown to provide very small bulbs for planting next Spring.

Peas—Sow for late use, if your vines do not mildew late in the season, and if you desire peas amid the profusion of Autumn fruits and vegetables. We have never found late peas very much appreciated. Save the best pods for seed, and pick as soon as dry. Clean up the pea ground as soon as the vines grow yellow, for turnips or other late crops.

Potatoes will have nearly got their growth this month. Plant cabbage or turnips between the rows at once, or clean the ground when all are dug, for spinach and other late crops.

Preserving fruits and vegetables. Read articles in last and other numbers, and lay in a full supply. Fruits can now be made a cheap luxury the year round. They are much cheaper than pills.

Raspberries—Cut down old canes as soon as the fruit is gone, and thin out the new ones, unless you want to multiply them. Three or four canes to a stool is enough. Keep the ground around them well hoed, but do not disturb the roots.

Rhubarb has had its season, and now that fruits are getting plenty, it may be left to recuperate if it has been hard plucked. If fruit should be scarce, it may be preserved in the same manner, or dried in the same way as apples. The late growth also makes a good wine, if that name is proper for any thing but the juice of the grape.

Seeds—Pay strict attention to sowing the seeds of cabbage, turnips, and all plants that mature early. After the pods begin to turn yellow, they will ripen more securely in the house, or under some shelter.

Strawberries—After bearing is over, weed the beds, and cut the runners that are not wanted for new plants. Prepare new beds, making them deep and rich, where you want them to last for several years. Most varieties do best in hills in the garden. With liquid manure they will do well on quite poor soil.

Thinning is generally very much needed among carrots and all the root crops—among melons and fruits. One good fruit or vegetable is worth many poor ones.

Tomatoes—Some recommend training to trellises and on brush. They ripen quicker on the ground, and for this reason we let them follow their bent. Pinch off the ends of the branches, and keep them within bounds. They will make better fruit.

Transplant to fill vacancies every where. A good deal may be done to remedy poor seed, or the ravages of insects this month. This can be done in the hottest weather with a little care.

Weeds are not useful or ornamental. Keep the hoe and cultivator moving, and the garden clean as a parlor.

Flower Garden and Lawn.

As too frequently cultivated there is a dearth of flowers in July. Many of the early bedding and other plants, including the bulbs, lilies, pæonies, dicentra, roses, etc., are nearly out of flower, and it is too early for the annuals, and for dahlias, gladioluses and other Autumn bloomers. The chief reliance must now be upon the verbenas, petunias, fuchsias, heliotropes, pinks, geraniums, hollyhocks, tall phlox, salvias, some of the remontant roses, etc. By drawing freely upon the potted plants of the green-house, the list may, of course, be much extended, but a good assortment of the above will make a fine show until relieved by later flowers.

A few of the quick growing annuals will flower late in the season if sown early this month. The perennials may properly be sown now for blooming another year.

Bulbs which are to be reset this season should be taken up and dried at once. Label them and wrap in papers or pack in dry sand until Fall, when they are to be planted.

Climbing plants will need regulating to keep them within due bounds. Do not allow those which are to be laid down for Winter, to become too much entwined about the trellis, or run through the lattice. Train them carefully upon one side.

Dahlias, gladioluses, etc., should be well staked and tied to prevent breaking down by high winds. Cut off a portion of the side shoots of the dahlia. One stalk is better than several. Look for and destroy borers, which often penetrate the stalk at this season.

Evergreen and other hedges should be clipped early this month, if it was not done in June. Single evergreen trees may also be pruned to advantage, especially if they are to be kept in a bush or shrub form. By no means destroy their beauty by trimming to a naked stem. They should always branch close to the ground.

Roses will still require some care to keep off that troublesome pest, the slug, which eats the leaves until they look like skeletons. A few good sprinklings and syringings with 1 lb oil soap mixed in 6 gallons water will effectually rid the bushes from these pests. The rose bugs will not fancy the application. Remove the flower stems as soon as the bloom has fallen. By cutting back freely a late bloom is often secured.

Lawns and Grass Edgings—Mow or shear once a fortnight, to keep a thick, green bottom. If the short grass is left evenly spread upon the surface, it serves to protect the roots from the sun, is soon hidden by the new growth, and its decay eventually enriches the soil. Do not let the turf encroach upon the flower borders, or grow too closely around newly planted, or even established trees. If suffering from dryness, a hydropult, or other sprinkler, may be used to advantage, sprinkling with the waste wash water, or with liquid manure, well diluted with water if it is dark colored and strong.

Verbenas should be pegged down as they extend their growth, until they form a perfect mat.

Water must be given occasionally to trees and shrubs set in the Spring, also to herbaceous plants. Frequent stirring of the ground will do much toward bringing up moisture from the soil, and it assists in absorbing dews. As often applied, water does little good; a pail of water dashed upon the ground soaks in very little, while it helps to bake the soil. Scoop out a hollow about the tree or plant, pour in the water, and when soaked in, return the surface soil.

Weeds are very apt to run up and go to seed under the cover of plants of similar foliage; of course they will not be tolerated by good gardeners.

Green and Hot-Houses.

These houses are nearly empty now, and require very little attention. Those containing tropical and other plants which can be better controlled than if set in the open ground, should be well cared for, one of the first requisites being frequent sprinklings and syringings with water. Evaporation is very rapid during the heat of Summer, and water should be given at least three times a week, not a mere sprinkling either, but a thorough soaking, which will do no harm, provided the drainage is good. Propagators prefer a glass structure in which to strike cuttings for increasing their stock. They can better regulate light and shade, heat, moisture, etc., and usually devote one house to this purpose, even in Summer. It is now time to put in cuttings of most plants intended for Winter flowering. The old and overgrown specimens should give place to new and vigorous plants which the skill of the florist easily produces from the parent stock.

Grapery and Orchard-House.

From the present time to the full ripening of grapes, peaches, nectarines, etc., care is necessary to check unnecessary or wild growth, to secure a perfect ripening of the wood which it is intended to preserve, to prevent mildew and ripen the fruit. There must be a good supply of foliage beyond the fruit, and in good light. The fruit need not be in the sunshine, but is better if shaded by its own leaves. This is particularly true of grapes, the skins of which are thickened by the action of the light. Thin out the branches even among the smaller berries. Look out for and remove shriveled, spotted or mildewed berries, tie up shoulders of clusters by strings to the wires or rafters. Use sulphur flowers freely upon the fruit and foliage. Withhold superfluous water during the formation of the stones in stone fruits and the seeds in grapes gradually increasing the supply again after they have become firm. Summer pruning, pinching, etc., must always be done with reference to that part of the current year's growth which is to be permanent, and with reference to the production of fruit buds for the next year's crop.

Apiary in July.

Prepared by M. Quinby—by request.

In this month, the bees usually obtain their best stores. If the colony is strong, their combs are soon filled to overflowing. A large portion at this time, should contain brood, but when honey is abundant, and store room limited, the comb which may contain brood, is apt to be much reduced, so much so that, in some instances, when cold weather comes on, the colony is quite too small. The Italians, particularly, are apt to fill up with honey instead of brood; but as they are longer-lived than the black bees, the effect is not so disastrous. A hive stored to its utmost capacity is not in as good condition for Winter as one that has a portion of its cells empty. The use of surplus boxes, then, is not only an advantage in secur-

ing honey, but a benefit to the bees. During the yield of honey, the full boxes should be changed for empty ones as fast as filled. In getting the bees from the boxes, much honey is often lost by the ordinary methods recommended. As long as flowers yield honey plentifully, it will do to set the full boxes down by the hive, in the shade of some tree or out-building, or in a darkened room with a small crevice to let out the bees. But as soon as it is scarce, the boxes so left are sure to be robbed. One man put nearly his whole crop in the barn, shut the doors, and went off to his work. On his return at noon, he found his boxes empty. The utmost care and some skill are required on some occasions—especially with Italians—to get rid of the bees, and save the honey. The directions heretofore given in the *Agriculturist* are probably as effectual as any simple arrangement. Take an empty box, bee-tight, put in the boxes on their sides, combs vertical, in such a way that the bees may creep out of all. Throw over them a sheet, that no bees may get in or out. After standing a little time, the bees, in their endeavor to escape, will get on the under side of the sheet, when it may be turned over; by repeating this a few times all may be disposed of. Bees in this way will not sting, unless provoked at first. To save the honey through the hot weather, put it in a dry place, and cool, if possible, to prevent the moth eggs from hatching. Paper or cloth may be pasted over the bottom to keep out mits and other insects.

Boxes should stand the same side up as they did on the hives. Swarming seldom continues later than the middle of this month. It is unnecessary to watch a hive for swarms later than eighteen days after the first one issued from it, although bees enough may be crowded out for two. When done swarming, notwithstanding all care to supply queens to old stocks as they are lost, there will be some queenless ones yet to be supplied. Ascertain as early as possible which they are. With the movable combs it may be known in a week or two, by examining combs for eggs or brood in the cells; but with the box hive, it may be three or four weeks before it can be ascertained. There must be sealed broods before it can be seen, and by this time, when they happen to be destitute, the colony is often reduced too much to recover, if they have to rear a queen. A few very small late swarms should be hived to have queens on hand to supply these with a laying queen at once. There is a gain of three weeks' time in breeding, over raising one from brood, and the difference, perhaps, of saving or losing the colony. One who has taken no pains to ascertain how quickly a swarm of bees die off that have no queen, can not realize the importance of her presence with a supply of eggs.

When combs have become eight or ten years old it is well to prune out, and let the bees construct new. To avoid wasting brood unnecessarily, which is as important as honey for the prosperity of the hive, it should be done three weeks after the first swarm. Take just time enough to get through before dark. Drive out the bees as directed for transferring combs, and set them on the stand until their own is returned. Take out all the black combs in the center of the hive that have been used for breeding, leaving those at the top and sides where they are seldom used for brood; they are usually filled with honey, and are a good start for refilling the hive. A moderate sized colony do not always fill up without this help. Invert the hive containing the bees and set the other over. The bees will take up all the dripping honey, and be in the upper hive by morning, when they may be set on the old stand. Three weeks after the first swarm is also the best time to examine for diseased brood. If found, pruning is not sufficient; the colony must have a *clean, empty* hive. If foul brood is discovered *at any* season, when honey is to be had, the bees should be put into an empty hive; if they get enough for Winter, it is well, if not, feed them, or, take out the bees in the Fall, and save the contents as a beginning for some swarm another year.

There are more moths about the hives this month than in any preceding month of the year; and there are more chances of their finding places for depositing their eggs. Very small swarms, old stocks that have swarmed freely, and but few bees left to protect the combs; and above all, queenless stocks, afford great inducements to the moth to deposit her eggs. Although a few worms may not destroy the colony, they will injure a weak one much more than a strong one. The number that destroys one, might hardly injure the other. Ascertain *which* are weak, and by frequent examinations, assist in destroying the worms. Strong colonies will do without much help. Put old pieces of comb under the hives that are part full; take out once in two or three days, and kill the worms that have gathered in them. Set shallow dishes containing sweetened water near the hives at night; hundreds will get drowned.

Wild Bees.—A correspondent inquires, "How wild bees in a hollow log may be transferred to other hives?" In the same way as bees are transferred from one hive to another, namely, by drumming them into a box or hive set above them upon the log, inverted, if possible, as one hive would be set upon the top of another inverted hive. The comb, after the bees are out of it, may be cut out, and fastened into frames, or inserted in the hive, in which the bees are to be put. Follow directions as given by Mr. Quinby in Apiary for previous months.

Exhibition Tables at the Office of the American Agriculturist.—The following articles have been presented since last report:

FRUITS, ETC.—Lancaster Greening Apples, from W. Miller, jr., Carlisle, Pa.....Lychee fruit, (Nephelium litchie) from China, from D. C. Eaton, N. Y.....Apples for name—"Campfield," from J. G. Holbrook, Chappaqua, N. Y... .*Strawberries.*—From Mr. Pell, Infant Orphan Asylum, N. Y.....Hooker's Wilson's and Triomphe de Gand, in pots, from C. S. Pell, N. Y., Orphan Asylum.....Wilson's and Austin Seedlings, in moss only, from J. C. Thompson, Staten Island....Longworth's Prolific—fine—from Mrs. Allston, Brooklyn, N. Y.....Triomphe de Gand and Wilson's, from J. C. Thompson, Staten Island.

FLOWERS, ETC.—Rodanthe Manglesii, Acroclineum Roseum, etc., in bloom, from O. Judd, Flushing....Cut flowers, from A. Cummings, N. Y.....Ditto, from Mr. Westcott, N. Y.....Ditto from A. S. Fuller, Brooklyn Nurseries....Ditto from J. C. Thompson, Staten Island. ....Salvias in variety, Veronica Speciosa, Pentstemon ovatus, Lupinus polyphyllus, Dictamnus fraxinella, Spiræ, Iris, etc., Geraniums, Cinerarias, Petunias, etc., from O. Judd, Flushing, L. I. ..Branch of Wistaria, from Mrs. Hall, Williamsburg, L. I.

VEGETABLES, SEEDS, ETC.—Desiccated vegetables—Cabbages, Onions, Potatoes and Carrots—from the N. Y. Desiccating Co., by Mr. Estus Woodbury, N. Y.....Curious growth of corn (12 ears in one) from Jas. Wilkinson, Minneola, Kansas....Corn from three ears—weight 23 ounces—from J. C. Cooke, Newport, Vermilion Co., Ind. ...Contraband Sweet corn—black, very curious, and said to be very early—from J. Conklin, Dobbs Ferry, N. Y.....Prince Albert Peas, (planted April 8, and gathered June 9)—fine—from G. M. Usher, Port Richmond, L. I. Chinese Sugar Cane head, from N. N. Hartwell, LaHarpe, Hancock Co., Ill.

IMPLEMENTS, ETC.—Model of Halsted's Corn and Potato Marker, from A. M. Halsted, Rye, N. Y.....Hostetter's Bag Holder and Conveyer, from J. R. Hoffer, Mt. Joy, Pa....Sheep Label, H. G. White, So. Framingham, Mass.

MISCELLANEOUS.—Pair of stuffed Moles—very large—from W. F. Heins, Woodstock, N. Y.....Swan, stuffed by J. L. Bode—from Mr. Lillienthal, N. Y.....Striped Dace and Crawfish, for Aquarium, from C. E. Wheeler, Orange, N. Y.....Egg of Bramah fowl—very large and heavy, length 3 inches, breadth 2 inches, weight 4 ounces—from Jno. M. Oakley, N. Y.....Red currant wine—very fine—from Mrs. Hall, Williamsburg, L. I.....Yorktown Shinplaster for 50 cents, from Malcolm McIntosh, 99th Regt. N. Y. Vols.....Piece of Plantain Tree, from G. E. Willet, Caraccas, S. A....Address Printer, W.M.Doty.

The "Homestead Act."

[The following important act having passed both Houses of Congress, was signed by the President May 20th, 1862, and is consequently in full force. Its provisions are important; they are so clearly stated in the Bill as to need no explanatory remarks:]

AN ACT to Secure Homesteads to Actual Settlers on the Public Domain, and to Provide a Bounty for Soldiers in lieu of Grants of the Public Lands.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled: That any person who is the head of a family, or who has arrived at the age of twenty-one years, and is a citizen of the United States, or who shall have filed his declaration of intention to become such, as required by the naturalization laws of the United States, and who has never borne arms against the United States Government, or given aid and comfort to its enemies, shall, from and after the 1st of January, 1863, be entitled to enter one quarter section, or a less quantity, of unappropriated public lands, upon which said person may have filed a pre-emption claim, or which may, at the time the application is made, be subject to pre-emption at $1.25, or less, per acre; or eighty acres or less of such unappropriated lands, at $2.50 per acre, to be located in a body, in conformity to the legal subdivisions of the public lands, and after the same shall have been surveyed: *Provided*, That any person owning and residing on land may, under the provisions of this act, enter other land lying contiguous to his or her said land, which shall not, with the land so already owned and occupied, exceed in the aggregate 100 acres.

SECTION 2. *And be it further enacted*, That the person applying for the benefit of this act shall, upon application to the Register of the Land Office in which he or she is about to make such entry, make affidavit before the said Register or Receiver that he or she is the head of a family, or is twenty-one years or more of age, or shall have performed service in the army of the United States, and that he has never borne arms against the Government of the United States, or given aid and comfort to its enemies, and that such application is made for his or her exclusive use and benefit, and that said entry is made for the purpose of actual settlement and cultivation, and not either directly or indirectly for the use or benefit of any other person or persons whomsoever; and upon filing the said affidavit with the Register or Receiver, and on payment of $10, he or she shall thereupon be permitted to enter the quantity of land specified: *Provided, however*, That no certificate shall be given or patent issued therefor until the expiration of five years from the date of such entry; and if, at the expiration of such time, or at any time within two years thereafter, the person making such entry—or if he be dead, his widow; or in case of her death, his heirs or devisee; or in case of a widow making such entry, her heirs or devisee, in case of her death—shall prove by two credible witnesses that he, she, or they have resided upon or cultivated the same for the term of five years immediately succeeding the time of filing the affidavit aforesaid, *and shall make affidavit that no part of said land has been alienated and that he has borne true allegiance to the Government of the United States;* then, in such case, he, she, or they, if at that time a citizen of the United States, shall be entitled to a patent, as in other cases provided for by law: *And provided further*, That in case of the death of both father and mother, leaving an infant child, or children, under twenty-one years of age, the right and fee shall enure to the benefit of said infant child or children; and the executor, administrator, or guardian may, at any time within two years after the death of the surviving parent, and in accordance with the laws of the State in which such children for the time being have their domicil, sell said land for the benefit of said infants, but for no other purpose: and the purchaser shall acquire the absolute title by the purchase, and be entitled to a patent from the United States, on payment of the office fees and sum of money herein specified.

SEC. 3. *And be it further enacted*, That the Register of the Land-Office shall note all such applications on the tract books and plats of his office, and keep a register of all such entries, and make return thereof to the General Land-Office, together with the proof upon which they have been founded.

SEC. 4. *And be it further enacted*, That no lands acquired under the provisions of this act shall in any event become liable to the satisfaction of any debt or debts contracted prior to the issuing of the patent therefor.

SEC. 5. *And be it further enacted*, That if, at any time after the filing of the affidavit, as required in the section of this act, and before the expiration of the five years aforesaid, it shall be proven, after due notice to the settler, to the satisfaction of the register of the land office, that the person having filed such affidavit shall have actually changed his or her residence, or abandoned the said land, shall have ceased to occupy said land for more than six months at any time, then and in that event the land so entered shall revert to the Government.

SEC. 6. *And be it further enacted*, That no individual shall be permitted to acquire title to more than one quarter section under the provisions of this act; and that the Commissioner of the General Land Office is hereby required to prepare and issue such rules and regulations, consistent with this act, as shall be necessary and proper to carry its provisions into effect; and that the registers and receivers of the several land offices shall be entitled to receive the same compensation for any lands entered under the provisions of this act that they are now entitled to receive when the same quality of land is entered with money, one-half to be paid by the person making the application at the time of so doing, and the other half on the issue of the certificate by the person to whom it may be issued; but this shall not be construed to enlarge the maximum of compensation now prescribed by law for any register or receiver: *Provided*, That nothing contained in this act shall be so construed as to impair or interfere in any manner whatever with existing pre-emption rights: *And provided, further*, That all persons who may have filed their applications for a pre-emption right prior to the passage of this act shall be entitled to all privileges of this act. *Provided further*, That no person who has served, or may hereafter serve, for a period of not less than 14 days in the army or navy of the United States, either regular or volunteer, under the laws thereof, during the existence of an actual war, domestic or foreign, shall be deprived of the benefits of this act on account of not having attained the age of 21 years.

SEC. 7. *And be it further enacted*, That the fifth section of the act entitled "An act in addition to an act more effectually to provide for the punishment of certain crimes against the United States, and for other purposes," approved the 3d of March, in the year 1857, shall extend to all oaths, affirmations and affidavits, required or authorized by this act.

SEC. 8. *And be it further enacted*, That nothing in this act shall be so construed as to prevent any person who has availed him or herself of the benefit of the first section of this act from paying the minimum price, or the price to which the same may have graduated, for the quantity of land so entered at any time before the expiration of the five years, and obtaining a patent therefor from the Government, as in other cases provided by law, on making proof of settlement and cultivation as provided by existing laws granting pre-emption rights.

Preserving Fence Posts.—Fences are in most parts of the country, and particularly at the west, still a necessary nuisance, and when once the great expense of fencing a country has been incurred, it is a great evil to have the posts rot away so that 10 per cent has to be renewed every year. Several systems of saturating timber with metallic salts have been found to preserve it for many years, even while subjected to the influences most favoring decay. The use of corrosive sublimate was early suggested and the process called Kyanizing after Mr. Kyan, the inventor of the process. Other cheaper salts have been recently and quite effectually employed, particularly sulphate of iron (green vitriol), sulphate of copper (blue vitriol), and chloride of zinc, the last called burnettizing. Posts are most perfectly prepared when placed in weak solutions of the salts in air tight chests, the air being exhausted by a steam or air pump, and again let in, the pores of the wood from which the air was withdrawn, are at once filled with the solution. Timber may also be prepared in open tanks by using very dilute solutions and gradually increasing the strength, from 1 to 2 pounds of the salt to 10 gallons of water. (See also p. 198.)

Containing a great variety of Items, including many good Hints and Suggestions which we give in small type and condensed form for want of space elsewhere.

Note to Crop Reporters.—Each one who furnishes a report will greatly favor us by putting the *Register number* which is in the first column of the table against his report, on the face of each blank returned.

The reports generally were received in good time, but a few came too late, and several we were only able to insert on account of a delay caused by the Strawberry Show. Some reporters omitted to give their names or residence, State, County, etc. Such reports are useless.

Full notes of prominent crops not named in the blanks, carried out in figures like the others, are very desirable.

Strawberry Premiums.—It is hardly necessary for us to direct attention again to the Strawberry Plants we offer on page 224 as Premiums for subscriptions to the *American Agriculturist*. A better opportunity to secure plants of these famous varieties can not occur.

Agriculturist Strawberry Show.—We have delayed our issue a little to be able to tell our readers about the Show of Strawberries at the Office of the *Agriculturist*, and can briefly report a most gratifying success. The Exhibition was large, the number of varieties very extensive, including many *very* valuable seedlings, and the size and quality of the fruit unsurpassed. Probably all kinds are a little tarter than usual, owing to the cool, cloudy weather and rains, but this has added to their size. The principal exhibitors are E. & G. Marshall, Po'keepsie, N. Y., 52 varieties. Prince & Co., Flushing, N. Y., 65 varieties, (not early enough or of sufficient quantity each, for competition.) Mr. Wm. F. Heins, Woodstock, N. Y., (amateur) 32 varieties. A. S. Fuller, Brooklyn, N. Y., 10 varieties, including 4 choice seedlings. E. Williams, W. Bloomfield, N. J., 28 varieties. J. Drummond, gardener to Mrs. J. H. Strong, Newtown, L. I., J. B. Colgate, Glenwood, Mr. Pell, N. Y. Orphan Asylum, William Shaw, and J. C. Thompson, both of Staten Island, besides many others showing less than 4 kinds each. The Show of new seedlings was especially fine. Our next number will contain engravings of some of the most notable kinds, and a full report. The awards made by Dr. I. M. Ward, of Newark, P. B. Mead, Ed. Horticulturist, R. G. Pardee, New-York, and Lowell Mason, jr., Orange, N. J., were as follows:

PREMIUMS AWARDED.

Largest Number of approved Varieties, E. & G. Marshall, Poughkeepsie. N. Y. $10

Second largest do., Wm. F. Heins, Woodstock, N. Y. $5

Best dish of Market berries, Wilson's Albany, E. & G. Marshall, Poughkeepsie, N. Y. $5

Best dish for General (Family) Cultivation, Triomphe de Gand, A. S. Fuller, Brooklyn, N. Y. $5

2d. do., Ward's Favorite, W. H. Goldsmith, Newark, N. J. $3

3d. do., Longworth's Prolific, Wm. Shaw, Clifton, S. I., N. Y. $2

Best three largest berries of one variety, (Triomphe de Gand,) weight 2 ounces, Wm. F. Heins, Woodstock, N. Y. $3

Best New Seedling. (Brooklyn Scarlet.) A. S. Fuller, Brooklyn, N. Y. $3

2d. best, (Large, high flavored and handsome), No. 8 B. W. A. Burgess, Glen Cove, N. Y. $2

High Commendation of No. 8 C, for size, good quality, and productiveness. W. A. Burgess, Glen Cove, N. Y.

Best Quart White Strawberries, Bicton Pine, John Drummond, Gardener to Mrs. J. H. Strong, Newtown $2

Best Quart best Flavored, Seedling No. 8 D. W. A. Burgess, Glen Cove, L. I. $2

Best Quart Triomphe de Gand, W. F. Heins, Woodstock, N. Y. $1

Best Quart Hooker, W. H. Goldsmith, Newark, N. J. $1

Best Quart Hovey's Seedling, $1.—Not awarded.

Best Quart Victoria, J. B. Colgate, Glenwood, N. Y. $1

Best Quart Wilson's Albany, Wm. Shaw, Clifton, S. I., N. Y. $1

Best Quart Jenny Lind, John Drummond, Gardener to Mrs. J. H. Strong, Newtown, N. Y. $1

Best Quart Vicomtesse Hericart de Thury, E. & G. Marshall, Poughkeepsie, N. Y. $1

Agricultural College Act.—Congress has finally passed an act by a generous majority, giving to every State 30,000 acres of land for each Representative and Senator in Congress, according to the apportionment by the census of 1860, conditional to the acceptance of the grant by any State within two years, and the founding of at least one College where Agriculture and the mechanic Arts shall be the leading studies, not excluding others. We shall have more to say upon this Act. A similar bill has been before Congress for some years, known as the Morrill Bill, and the honor of having carried this through belongs to Hon. J. S. Morrill, of Vt.

Dyed in the Wool—A Curious Phenomenon.—Through the kindness of the Editor of the Pontiac Jacksonian, we have received a sample of Merino wool, of good quality, clipped from a pure blood Merino ewe, owned by Mr. Robt. Percy, of Oakland Co., Mich. This wool is remarkable for growing of different colors. The outer end of the locks sent is dark brown (what would be called *black*), ⅛ inch—then ⅛ inch is white, next about 3-16ths black, white, black; then follows nearly ¾ of an inch of white, and following this fully ¾ of an inch of jet black, then ⅜ of an inch of white, followed by a slight shade of black, which was the growing color at the time the lock we have was clipped. The entire length of the wool is 2½ inches. The black is the healthiest wool, having the best curl. This interesting phenomenon should receive skillful and careful investigation, that the cause may be known. It is no accident.

To California Subscribers.—With this issue our subscribers in California, Oregon and Washington Territory, will commence receiving the *Agriculturist* by the steamer. This we hope will insure regularity and certainty of delivery. Since the newspaper mails have been made up for the overland route, we have had continual complaints of a failure to receive our journal. The fault has been not in the least our own, but we are willing and desirous to supply missing numbers, and will do so to all who notify us. It is gratifying to know that notwithstanding the irregularities of the mails, our Pacific list has been well sustained, and we now hope, with regular newspaper mails, soon to address a still larger audience on those peaceful shores and among the wine and gold bearing hills and valleys.

Per Steamer to California.—A number of inquirers ask for information respecting the California Steamers, etc. The only regular line of Steamers now leave this port for the Isthmus on the 1st, 8th, 16th and 24th of each month. Time through to San Francisco, 21 to 23 days. The through fares vary from time to time. They are now: In Deck State room, $225; First Cabin, $200; Second Cabin, $150; Steerage, $100. For further particulars, fares at any time, etc., address only D. B. Allen, No. 5 Bowling Green, N. Y. City.—*and don't buy tickets of any other person.*

Rogers and Gest's Ammoniated Superphosphate.—NOTE FROM DR. PUGH, to the Editor of *American Agriculturist*....DEAR SIR.—The manufacturers of the above manure, fear that what I have written you in relation to it, will lead the public to suppose that they sent me the first specimen we analyzed (worth about 3 times as much as the last), with a view of having me attach a higher value to their manure than it deserved. It is but just to them to say that previous to the publication of the first analysis, I never had any communication with them, nor did they know anything about our intention to analyze their superphosphate. EVAN PUGH.

Agricultural College, Pa., June 2d, 1862.

Wines—American and Foreign.—It is certain that a very much larger quantity of wine is sold in this country than grows or is imported. Great quantities besides of the juices of other fruits, cider, currant wine, blackberry wine, huckleberry juice, etc., are used as the bases of imitations of wine, and sold and drank as such, to put no estimate upon the quantity of the very deleterious compounds of logwood, sugar of lead, and alcohol with other drugs, made to look and taste like port, claret, etc. Moreover, in the wine growing regions of our own country, the fact is notorious that additions of sugar and water to the expressed juice or to the pulp and skins of the grapes, are of a character to double or triple the products of some vineyards. Wine will be used, and any facts which will protect the public should be made known. Stringent laws would be equally advantageous to the importer, producer, and the consumer.

Tool Chests.—See premium list in March and April Nos. We take pleasure in directing attention to these valuable premiums. They are from the factory of Geo. Parr, of Buffalo, N. Y., and are well worth the trouble of obtaining as a premium. How much labor is saved by having an implement at hand to do any little matter at the moment—irrespective of the satisfaction of being able to accomplish it without the aid of a mechanic, and it is of inestimable value to any boy to have a knowledge of the use of tools a part of his education. How many shall we send out before the long Winter evenings are upon us? Forty-three subscribers for a $20 tool chest, and a smaller number in proportion for chests of less value.

The American Pomological Society holds its 9th biennial session in Boston, beginning on Wednesday, Sept. 17th, at noon, to continue several days. The biennial fee for membership is $2. Delegates are invited from all State and other Horticultural and Agricultural Societies. The catalogue of fruits is to be revised, and all intrusted with making reports for their localities are requested to forward them without delay to Mr. P. Barry, Rochester, N. Y.

Fancifully Colored Fruit.—It is a practice in Austria and some other parts of Europe to put various armoreal and similar fanciful designs upon fruit. It is done by cutting the figures out of opaque paper, and covering the ripening fruit with the paper. The parts of the apple or pear exposed to the light will take the natural blush or red color, while those shaded by the paper become quite white, or light colored. Such fruits, if the designs are beautiful, bring large prices.

Which is the Best Botany?—"J. W. H.," Middlebury, Mass., without doubt "*Gray's Manual*" of botany is the best for students or for a hand-book. It is accurate, contains more plants than others, the names are spelled rightly, the descriptions are clear, mere varieties are not magnified into species, and so far as concerns the flora of the Northern United States east of the Miss. River, Virginia, and Kentucky, it is very complete. A new edition has lately been published by Ivison & Phinney, New-York, in which, besides other important and valuable addenda, 50 pages are devoted to the exotic plants of the Farm, Garden, shrubbery, lawn, and green-house. Bound in the same covers is Gray's first lessons in Botany. Price of the whole, in one volume, $2.25.

Salt-water Manure for Cabbages.—A farmer who has tried it, states that a weak solution of salt-water—about fifteen grains of salt to each pint of water—sprinkled upon growing cabbages two or three times a week, improves them materially, especially in heading, rendering the heads more solid and heavier.

Growing Celery.—A subscriber succeeds marvelously by raising it in a spent hot-bed—plants five or six inches apart—sides of bed deep. Water as the plants need, and trim the tops three times during Summer. They are bleached in a box in the Winter by moving in the cellar and covering the plants with dry dirt.

Seeds, Plants, & Cuttings by Mail. The law is one cent an ounce, or any fraction of an ounce—for fifteen hundred miles—two cents for greater distances. Eight ounces is the limit of the package that may be sent. If the Postmaster makes a fuss about sending grafts and seeds, his neighbors should write to headquarters. Uncle Sam is ready to help them.

Peach Culture—Information Wanted.—There is great need of more information on the culture, diseases, etc., of this luscious fruit. We offered a prize for the best essay, but have received nothing of sufficient value to be published as a prize article. We solicit information from those who can speak from experience and observation.

Strawberry and Fruit Culture.—"E. McC.," Ohio. The business will pay anywhere, if there is a good market, and skill in the cultivator. The business grows upon one's hands generally after it is started. The beginner will of course have to pay for his education, and this item must be taken into the account in estimating the profits of the business.

To make Vines Fruitful.—Melon, cucumber, squash, and other vines of this class, are often rendered more fruitful by the pinching-in or shortening-in process. Pinch off the ends of the longest, and thus throw more strength into the lateral, bearing branches.

Cranberries.—"B.," of Cumberland, R. I., has an acre of meadow, with muck from eight to sixteen inches deep, underlaid by stiff clay, and wishes to change it into a cranberry patch, at the least expense. There are various ways of doing the thing. The muck should not be removed. If situated so that the meadow can be flowed in Winter it is desirable, though not essential. The present vegetation may be killed by draining, and planting with potatoes a year or two. Cut a ditch quite around the edge of the swamp. When the sods are decayed and the surface is free from weeds and grass, plant the vines in rows, and cultivate a year or two until they get full possession. They can be planted in the grass in sods, but it would be a long while before they would cover the ground. B. should visit a successful cranberry grower in his region—E. Bagley, of Usquepaug, R. I., for instance.

Pegging down Roses.—A writer in the Gardener's Monthly recommends the pegging down of moss and other roses, so as to cover the ground with their foliage and flowers. With some sorts the effect is very fine, and the bloom fuller and continued longer. It is a little harder to keep the bed clean and the ground loose.

Honey Locust Hedges.—From what we have seen of this plant put to this use we do not favor it, except for a farm fence, and for this purpose its roots run too near the surface. If well trimmed, forced to branch low, and not allowed to take the table-top shape, which is the natural habit of the tree, it will make a coarse, stout hedge. It needs light and air, otherwise the leaves fall and the small branches die; and the danger is that eventually only the tops will live. On this account it must be planted quite open.

English Hedge Plants.—"B. C. C.," Ohio. Hawthorn and Privet both grow in this country, but do not do as well here as at home. They grow ragged early. The seed is generally for sale at the large seed stores in cities, and sometimes at nurseries. The evergreens, Arbor Vitæ or Hemlock, make a better hedge.

Grafting, Budding, Striking Cuttings, etc.—"G. H. F. W.," Ill. You will find full instructions upon these topics in back numbers of the *Agriculturist*, also in Downing's, Thomas', and Barry's works on fruit culture, and in most works on gardening. See also page 209 of this number.

Seedlings of the ungrafted apple and pear are generally considered more hardy, but both are extensively planted to raise stocks for grafting and budding.

Dwarfing Apples.—"D. O. D.," Mc. The Paradise stock can be had of nurserymen with the apples already budded upon them, or not. They are of no use except for this purpose, and it would be hardly worth while, except for curiosity, to graft the Paradise upon the crab apple.

Currants as Trees, are usually trained from cuttings. They need frequent pinching back, and constant care while growing to keep them in this shape.

Low Limbs on Fruit Trees.—The hight at which the first limbs should come out will depend something upon the aim of the fruit grower. If the ground is used for any thing else, the limbs must be up out of the way of the cultivation. If fruit alone is the aim, we want very low limbs. The ground and the trunk of the tree is better shaded, the fruit less exposed to the winds, and more easily picked. There are many advantages in low limbs.

Fruits Abundant.—We do not recollect when strawberries have been so plenty and so cheap—10c. per quart. An abundant crop of cherries is ripening, while the peach, apple and pear trees are loaded with green fruit. Whatever may be said of other crops—and they generally promise well—we are at least having a *fruit*-ful season. Don't forget the bottles intended to protong the fruit period indefinitely.

Goats for Milk.—The milk is good, but small in quantity. Goats are generally kept by people who are careless of their neighbors convenience and comfort. They are destructive to all trees and shrubs, and should not be allowed in the streets in any civilized community. If a man has a bush pasture that he wants cleaned up and buys goats he will not have to buy bush scythes. If he wants milk, buy it, or buy a cow.

Relieving a Horse Stung by Bees.—J. L. Gibbs thus describes, in the Stock Journal, his treatment of a horse badly stung by the enraged bees of a hive he had just upset. The horse was in an agony of madness, rolling upon the ground and screaming in a frightful manner. A rope was thrown over his head to secure him, and after administering chloric-ether, he was covered with lime water and linseed oil—which afforded immediate relief. A purge the next day, when fever was apprehended, completed the cure.

Cure for Scours in Pigs.—E. B. Lewis, of Morris Co., N. J., says he cured this disease in August pigs, with strong tea made by boiling red cedar twigs.

Sheep Labels.—A subscriber (name not given), in Essex Co., N. Y., asks information about sheep labels, described on page 173. The labels may be obtained of any tinner or coppersmith, or may be cut out of sheet copper, by shears or punches. We see no necessity for their being round, but they might be triangular, square or oval; the rings may be obtained at any good hardware and cutlery store, or, for aught we see, well-annealed wire would answer nearly as well.

Stock-Raising in Texas.—We know of no work devoted exclusively to stock in that State. The standard treatises, Youatt, Skinner, Randall, etc., would be available to any one who wishes to raise cattle there.

Grape Vine Flea-Beetle.—This is a glossy, steel-blue colored insect which makes its first appearance early in May, and eats into the fruit buds. A second brood appears in the latter part of July. Watch for and destroy them. Crushing is a sure method, but perhaps dusting the vines with lime when wet with dew, will be effectual. Showering with an alkaline solution made by dissolving one pound of hard soap in twelve gallons of soap-suds after washing, is also recommended.

Peach Borer.—"R. J. C.," of Va., recommends piling small stones around the stem of the tree.

Another Remedy against the Borer.—Like those weeds which thrive best when trampled most, the borers still live. Let us not despair of preserving our trees against this vexatious *bore*. The Editor of the Gardener's Monthly mentions that a friend, who is famous for his success in fruit-culture, especially in growing large crops of the finest apples, informed him that the secret of his "good luck" consisted in "keeping away the borer." To do this he says: "I merely keep the soil scraped from the trunk down to the bare roots, Winter and Summer." His argument in favor of his management, is, that the borer requires moist, soft bark for its operations, and that the removal of the soil from the trunk of the tree, rendering the bark firm and hard to the collar, instinctively causes the borer to select a more favorable place for development. The treatment thus described was successful: the trees were untouched by the borer.'

Rose Bugs on Grape Vines.—Whale oil soap, 4 lbs to a barrel of water, applied with a syringe, destroys most insects. We suggest it for the rose bug.

Curculio Remedy.—In the recipe which we copied, ½ lb. was probably mistaken for ½ pk. The water should have all the lime it can take up, and for this purpose a pound is as good as a peck. The strength of the tobacco water we have never found necessary to measure very accurately, using a pound or two of cheap, damaged tobacco, to four gallons of water.

To Kill Bushes.—(Robert.) Doubtless the mid-summer is the best time. Not because of the passing overhead of any particular star or constellation; not because the moon, new or old, exerts then any occult influence; but because the bushes are then in their most rank and succulent state, and if cut off then, close to the ground, they get a hard shock, from which they do not easily recover. It is well, also, to scatter salt profusely over the stumps, so that some of it may fall into the hollow stalks, and so kill out the roots. The salt, moreover, will attract the cattle and sheep there, whose constant browsing will serve to check any subsequent growth. Grubbing up the roots by hand is the surest method.

Burying weeds, etc., with the Plow.—"J. C. K.," of Saratoga, recommends hitching a chain to the cutter, and the other end in the staple of the whiffletree of the off horse. The loop hanging down will lay all weeds and grass flat so that the plow will bury them. This is the common practice of all good farmers.

To Destroy Canada Thistles.—Mr. A. J. Wanzer of Fort Plain, sends us the statement that he tried the following recipe or direction with entire success: "Cut Canada thistles the second day after the full moon in July." He had an excellent crop on half an acre of land, and mowed them down on the day designated one year ago, and now they have entirely disappeared. We do not believe that the moon has any thing to do with it, but from this assurance that nothing else was done it appears that at a certain period of their growth (probably, if not interfered with earlier in the season) they are peculiarly vulnerable, and this period occurs sometime in July. Let who ever believes in the moon's influence try mowing a few every day for a week before and after the magical second day after the full moon.

Grass in Fish Ponds.—"T. M. F.," of Ind. If the grass or water weed springs from the soil, the evil may be remedied perhaps, by draining off the water occasionally, and cleaning out the mud. The mud would pay for cleaning out, aside from the benefit to the water.

Eggs Cheap—Lay up for Winter.—Fresh eggs are now very abundant and cheap in this city; they are selling here for 8 to 10 cents per dozen, and of course much lower in the country. They are a nourishing, cheap food, easily digested, and are good not only alone, but when used in a great number of cooked dishes, and especially in all kinds of cakes, etc. A large stock may be put up for winter now while they are plenty and cheap. Coat with wax, or lard, or anything to keep the air from entering through the shells, and store in a cool place. They may be kept in lime, as noted elsewhere.

Pie Plant Sauce.—A lady subscriber says it is not necessary to peel the stalks. This is true, we know of the Linnæus and other thin-skinned varieties. But all kinds have not so delicate an external membrane.

Filling for the sides of a Hot-House.—"L. M.," of Brownsville, N. Y., wishes to know the comparative merits of brick and tan. Brick makes the more lasting wall. Tan will attract moisture probably quite as much as the brick and will soon rot the boards that contain it. It would, however, last a few years, and if lumber is cheap it may be economical to use it for filling.

Best Shape for Drain Tiles.—E. Crosby, Gratiot Co., Mich. Round tile, simple cylindrical tile, are preferable, being less expensive, and more easily adjusted. Sole tile, that is, tubes with a flat piece on the lower side, are extensively used, but are not so desirable. The use of collars with round tile is very desirable, but considerably increases the cost.

Water Lime.—"N. H." of Absecom, N. J. This article is known in the market as cement, and costs about the same as common lime. It can be had at Newark, and probably at "the store" in your nearest town.

Preserving Posts—A Suggestion.—In most prairie regions lime, water-lime, sand and gravel are cheaply obtained. We think posts properly set in grout—made by taking equal parts of lime and water-lime mixed with the right proportion of sand for good strong, rather thin mortar, then filled with as much clean gravel as it will bear—would not only be preserved by the lime but would stand nearly as firm as though set in large boulders imbedded in the earth. Large post-auger holes two feet deep would be large enough, and yet would not need much material. The post should not touch the ground and the cement should be drawn up around it so as to turn water.

Coal oil to soften Putty.—"J. A. G." of Waverly, N. Y., recommends this article, and says it is effectual. If so, coal oil is now so common that it will prove a very convenient article for this purpose and save much labor in repairing old windows.

Coal oil for Oil Stones.—For this the same person also recommends it. It does not gum in warm weather nor freeze in cold, and sets a good edge.

Skunk Odor.—"L. P." of Coldwater. The bouquet is of unparalleled pungency and sticks closer than a burr. Burying the garments in the earth, or in fresh burned charcoal, are the best remedies we know of. They should lie several days.

Raising water by Pipes.—"T. J." of Michigan City, Ind. The cheapest mode of raising water and supplying a few families, would be by the water ram and lead or iron pipes. The pressure will be too great for cement. The size of the pipes needed will depend upon the quantity of water it is desired to raise, and the hight. See this subject illustrated in November 1858.

Cobble-stone Pavements.—("H. S. I." Woodbury, Conn.) They are made by filling in a bed of sharp sand to about half the thickness of the stones of the level you desire the pavement to be. The depth of this bed of sand is according to the soil—on a firm gravelly or sandy soil it need be but just thick enough to give a bed to the stones; on loamy loose soil considerably thicker, and perhaps underlaid with a layer of flat stones and gravel. When a suitable bed is prepared, stones of a uniform size (at least the exposed ends to be uniform) are selected, and then the stones are placed partially buried in the sand and rising one or two inches above the desired level. The work is done by means of an adz-shaped tool by which the sand is scooped away and the stone tapped down firmly. When some square yards are set, the stones are settled by means of a heavy pounder made of a sound hickory stick, 8 inches thick at the big end, 3 feet long with an upright handle in the top and one at the side; and finally, fine sand is swept back and forth over the pavement until all the cracks are filled.

Influence of the Moon on Vegetation.

Superstitions die hard. Men have a natural love of the marvellous. The simple truth don't satisfy. We like to be imposed upon, and not content with this, we impose upon ourselves. An instance of this appears in the various notions in vogue respecting the influence of the moon. Here are a few of them:—The rays of the full moon falling upon a pan of milk will turn it sour. The light of the moon produces a chill. Purgatives for children operate only in the first quarter of the moon. Pork will shrink badly, if killed in the wrong quarter. Peas planted in the first quarter will run to vines. Hemlock bark peels easily in the new, but not in the old of the moon, in August and September! We have read of a man who "*knew* that hickory cut in the new of the moon was safe forever from worms, for he had tried it"; "Safe *forever*, for he had tried it." Venerable old man! you have plucked the honors from Methuselah.

The moon, so the astronomers show us, is at a mean distance from our planet of 240,000 miles—sometimes a little farther off (apogee), and sometimes a little nearer (perigee). It revolves around the earth once in twenty-seven days, but, on account of the daily revolution of the earth on its own axis, the moon appears to go round us once in about twenty-five hours. It appears larger at one time than another, but this is only because the sun then shines upon more of that portion of the surface which we see. The same quantity of matter revolves around us at the first quarter of the moon as at the full moon, only we do not see it.

Does the moon, then, affect us by attraction? This acts on all matter alike, and it diminishes inversely as the square of the distance. The influence of the moon's attraction must be nearly uniform and constant, not dependent on the mere fact of its giving light or not. As it passes over us every day of the year, at nearly the same distance, why should not its attracting power be about equal every day? Yet people never think of the moon's power when it is not visible. Consider, too, its comparatively small bulk—only about one seventieth the quantity of matter of our globe—and its immense distance from us. Is it supposable that its attracting power can influence the rise and fall of the sap in vegetables, or the flow of blood in animals?

Still, it can not be denied that the moon produces mechanical effects on our globe. Its influence to a great extent causes the tides of the ocean. Yet it does not sensibly affect the surface of our lakes and rivers; and if it does not influence those great inland seas, is it likely that it affects the juices in the stalks of peas, or the sap in hemlocks?

But how about the influence of its light? It has no light of its own, but merely reflects that of the sun; so it is sun-light after all. How powerful is it? There is, according to M. Borguer, a French philosopher, only 1-300,000th part of the illuminating force in it that there is in the sun. Surely, only a little effect can be produced by that. Yet, as stated by Dr. Lindley, (see last edition of his "Theory of Horticulture,") a very slight effect has been detected by a French naturalist, on the delicate leaves of the *Mimosa ciliata*, *M. pudica*, and the *Desmodium gyrans*, the first being raised four-tenths of an inch, the second about an inch, and the last exhibiting slight vibrations. These plants are very delicate and sensitive in their organization, and it would not be wholly impertinent to suggest that possibly these effects were produced, accidentally, by the artificial heat or lights of the green-house in which the experiments were performed, or by the bodily warmth of the operator, or by currents of air from open doors or windows. But, at most, the effect of the moon's ray is so slight on ordinary plants as to be entirely imperceptible, and of no practical account. An astronomical professor at our elbow observes that the reflection of light from a white cloud by day is stronger than that from the full moon.

As to the heat of the lunar ray, no great claim will be set up for it by any body. Indeed, our friend was about right when he affirmed that the moonlight chilled him. Experiments have been tried with the most delicate thermometers, and not the least impression was produced.

On the whole, we can not find that these moon-struck people have much beside moonshine in their theories. Those with whom we have happened to talk, seemed about as serious and wise as the farmer who gravely said: "And I allers took notice, in layin' stun-wall, particularly in the full o' the moon, that the foundation stun allers cum next to the ground!" *

For the American Agriculturist.

Spare the Birds!

A certain New-Hampshire poet is hard upon bird-shooters. He declares: "You have lived too long already. Instead of marble, you deserve a white birch slab, with this epitaph:

> Here lies at rest, a worthless pest,
> Who had no soul to lose or save;
> And these four words——*He killed the birds*,
> Proclaim his worth who fills this grave."

Well, I have myself said similar things in the days of my inexperience, but just now, smarting under many sufferings, beg to sing a different song. What thieves some of the birds have proved to be! Having won our affections they took great liberties with our property. Our strawberry beds, filled with the choicest new varieties, and just coming into bearing, were their first plunder. Whistling at them, and shoo! shoo-ing, did no permanent good. They thought it only one of our amusements. We then set up all sorts of scare-crows, old coats, hats and bonnets of former generations, rattling wind-mills, pieces of glittering tin, and such like terrific things. They answered well for a day or two; but after that the robins came and perched on the scare-crows, and revelled among the berries again! We next tried throwing sticks and stones, until we were all tired and our patience clean gone entirely.

Well, tenderness of heart and sentiment ruled, and the robins were allowed to take the better part of our strawberries. Next came the raspberries, and the robins likewise, and very hungry. We scolded, and threw sticks and stones, but to little purpose. The birds got most of the ripe fruit. We couldn't hurt the sweet songsters.

Last of all, came our grape-crop. Robins like good grapes. They coincide with the critics, that Delawares and Rebeccas are our best grapes, very toothsome, easily digested, may be eaten in large quantities without disagreeable results, etc., etc. An occasional stick or stone flying about their heads is a very trifling affair. Loud talking, and all attempts at frightening them, do not disturb their serenity. The writer of this, in a moment of passion, last Fall, loaded his gun and shot two robins from his vines, and hung their mangled bodies across the top of the trellis as an awful example to others. In ten minutes after, several robins came and sat by the side of their dead companions, digesting their grapes and pluming their feathers as though nothing special had happened! Day after day the voracious birds came in flocks, and soon stripped our vines. The money loss, indeed, was not irreparable, but the disappointment and vexation—the loss of specimen clusters from many new varieties which I had watched for several years, and were just coming into bearing; lost, too, in such a cool, unappreciative way—was more than I could patiently bear.

Henceforth, I shall keep my shooting-iron in order, and loaded; and the first robin that touches our strawberries, and the last that devours our grapes, shall feel the cold lead. In all other parts of our garden, orchard and lawn, all birds shall be welcome, but in the places afore-named we shall not be responsible for their lives. FOWLER.

[The argument of brute force is effectual, but should be used only as a last resort. We think birds that have the liberty of the lawn and orchard, will not be likely to fear the cold lead that awaits them in the strawberry patch. They will fear a cat, either caged or stuffed. You can not put pussy to a better service than to guard the berries. She may be confined by a string in the strawberry patch, or in a large bird-cage among the raspberries and blackberries. A skin neatly stuffed, in the cherry tree, will frighten them away. Their instinct teaches them to shun certain natural enemies. Keep these in sight and your fruit is safe. What boy would steal pears with a fierce bull dog under the tree? A bird's instinct is as good as a boy's.—ED.]

Use of Toads in Agriculture.

Our ugly friend affects gardens as much as the lord of creation. You will find him in a hole in the wall, in the strawberry patch, under the squash vines, or among the cucumbers. He is not handsome, but serene and dignified as a judge. He executes judgment upon all bugs, worms, snails, and pests of the garden, in the most summary way. See what a capacious maw he has, occupying the whole space from his fore legs to his haunches. He is the very incarnation of stomach, and his gastronomic feats would do credit to an Alderman. He tucks away bugs and all kindred flesh as an epicure would turtle and pudding. He is never full. That maw stretches like caoutchouc, and he is nearer having an endless gullet than any reptile. He is altogether too useful to be without enemies. All the serpent tribe hate him and devour him when they can. Even man slanders him. He misses a few strawberries from his patch, and lays it to the toad, who stands like a sentinel guarding his treasures. It was the snail who did the mischief before the toad took up his station; fortunately he is now where he will spoil no more ruddy fruit. Or it was the robin who slyly snapped up the berries and flew off into the neighboring tree, leaving the poor toad to bear his sins. But you see by the look of his honest face, that he is guiltless. Those lustrous eyes are above stealing. One fat bug would give him more pleasure than all the fruit in your garden.

Cultivate the friendship of toads, for they take the insects that the birds are apt to overlook. They inspect the ground closely, peer under the leaves of strawberries, under the growing vines, and nab every creeping thing in sight. They are as easily domesticated as birds, never sing when you do not want them to, are quiet and unobtrusive, and if not worth five hundred dollars a piece, are still profitable pets and fellow-helpers. Birch the boy that teases toads.

The Agriculturist Crop Reports.

Breadth, Condition, and Prospects of the Growing Crops in 24 States and Territories. Gathered from 1,557 Reporters.

On pages 218 and 219 will be found, in compact tabular form, the reports on the growing crops for June 10th. A considerable increase in the number of reports over last month will be marked, and some important changes. We are free to say that no system of gathering statistics in this country, (*even* that *attempted* recently by the Patent Agricultural Office,) has given so satisfactory and truthful an exhibit of the state of the crops, even over a very limited district, as we present in these reports for the whole country, where war is not actually going on. Drouths have continued in some sections since our reports came in, which were then severe, and in parts of Illinois the newspapers report, in a few cases, great damage to the wheat by the midge and chinch bug, but of this we have no direct report, and do not believe extensive damage has been sustained by the crops.

PROSPECTS.

Winter Wheat promised, on June 10th, well in all the great wheat region of the West, and below an average only in New-England and Kentucky. We have reports of injuries to the crops by rust, and insects, or by both, from a few counties in Ohio, Indiana, Illinois, and Iowa, but in few cases only are they very serious.

Spring Wheat has been affected quite unfavorably by the cold rains, frosts, and drouths.

Indian Corn.—Our great staple, upon which also depend the beef and pork product, is, we regret to say, a little "under the weather" yet, still June settles the fate of the crop, and that was only one-third passed when our reports were made out, and the season besides was nearly 10 days backward.

Rye, following in the wake of careless wheat farming, is chiefly reported upon in the older States, and hardly comes up to average promise.

Oats almost everywhere have been seriously affected by the unfavorable weather of all kinds —planted late, they have suffered equally from cold and drouth where they prevailed.

Hay.—The grass crop seems to have sustained itself well—no where below average in promise except in Michigan, New-England, and N. Y.

Potatoes promise decidedly better than common, except perhaps in the far West.

Fruit.—The apple crop has suffered considerably, but not enough to reduce the crop to average, or near it; and the peach crop still promises exceedingly well.

THE GENERAL AVERAGE is about 3 per cent lower than last month—the footing being **12.2.** The average prospects of farm crops (exclusive of fruit) is a little above average, viz.: **10.3** which is very gratifying.

CROPS NOT SPECIFIED.

BARLEY.—We have reports from Ohio, Wisconsin, Minnesota, the Middle and Eastern States. The mean of the estimates for surface compared with the average for 5 years is 13, or nearly ⅛ more, while the prospects are accounted 11⅛—decidedly better than average. Where sorghum is cultivated, barley has given way to it a little.

SORGHUM.—We have quite full reports from Ohio, Indiana, Illinois, Iowa, and a few from Pennsylvania, Minnesota, Mich. and Wisconsin. In only a single case is a decrease of surface reported—in another, an equal surface—in all taken together (70 reports), an increase amounting in the mean to nearly 3 times the breadth cultivated for the past 5 years. This must indicate a large increase over last year. In the case of this crop it would be better could we compare this year's crop with that of last year instead of the 5 years past. (If reporters follow this suggestion, will they please specify it particularly.) The prospects of the crops in Ohio and Indiana, are better than average; in Illinois, a little below, and in Iowa, just about average. The crop now promises to make itself felt in the market decidedly more than last year.

FLAX.—The reports from the flax-growing Counties of Ohio, Indiana, Illinois, and Pennsylvania, uniformly represent a much greater breadth sown than usual, and the crop above the average condition, and the same is true of scattered reports from other sections. They all foot up 2⅛ times as much sown, and two-tenths better prospects than usual.

HOPS.—So far as reported it appears the culture is increasing and the condition very promising at present.

PEAS AND BEANS.—These crops are reported chiefly from the extreme Northern line of States and Counties; about two-thirds more than common have been planted, and the crop does not promise well on the whole.

THE WEATHER for the month from May 10th to June 10th, has been exceedingly diverse in different parts of the country; even different parts of the same State exhibit in numerous cases the results of excessive rains, and, for the season, of unusual local drouths, while in every State larger or smaller sections have enjoyed that happy medium which is the farmer's highest joy in this respect. In New-England, and the States of Maryland, (Eastern) Virginia and Delaware, while there has been some drouth, sufficient to reduce the hay and Spring grain crop materially in sections of New-England, the weather has been on the whole, better than in average seasons. In New-York and Pennsylvania, it has been less favorable, a severe drouth being reported by many in the Northern, Western, and Middle counties of New-York, and in Western Pennsylvania, and at the same time very cool weather has prevailed in some of these same regions accompanied by killing frosts, while Central and particularly Eastern Pennsylvania, and Eastern New-York, to a less degree have suffered from powerful rains, causing freshets, etc. The season is backward every where, though where dry weather has prevailed, Spring work has been well done. In Ohio damage to crops from wet weather, floods and frosts is reported, though the dryness in some of the Northern counties has amounted almost to drouth. In Indiana, through the middle counties there has been some trouble from drouth; in the southern from wet; while a similar state of things has prevailed in Illinois. The streaks (so to speak) of wet and dry weather have taken in a measure an oblique N. E. course across the country. In Michigan there are reports of drouth and frost. In Wisconsin, cold, wet weather, drouth and frost are all reported. Iowa reporters speak of a backward season, cold and wet. The severest changes and hardest storms occurred between the 20th of May and the 1st of June, since which time the weather has been more generally dry, especially in New-England. In Maine, for instance, there has scarcely been a soaking rain since planting time, and the hay crop promises to be very light.

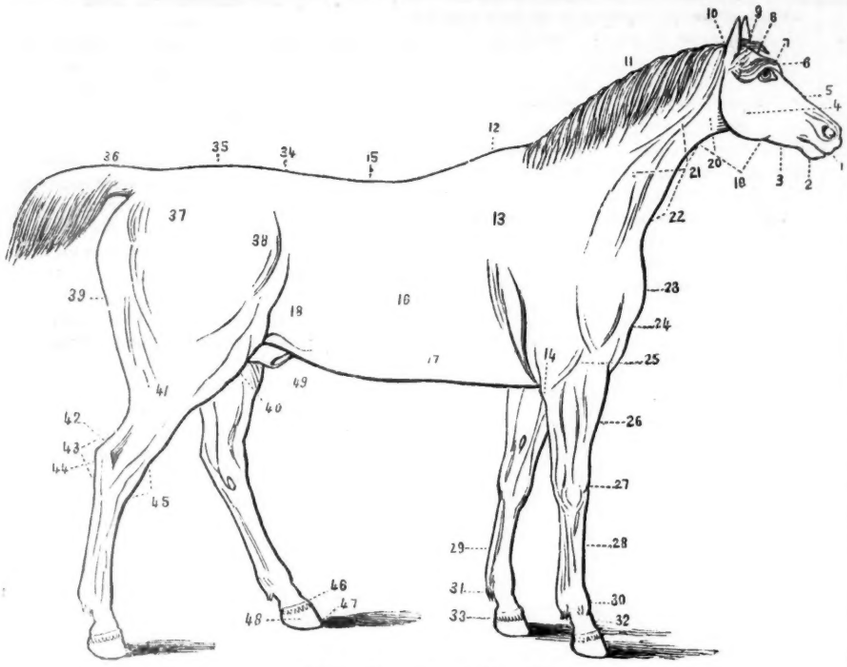
The Homestead Law.

The measure for procuring homesteads for the landless which has been before the country for so many years, has at length become a law. It will be good policy for the Government, we have no doubt, for the lands given away will be worth far more to the country, peopled with an industrious population, than lying waste as they now do. They will soon yield up their treasures of grain or of cotton and tobacco to be exported, and to buy goods that will pay a duty to the Government. Peopled, they will furnish soldiers for the army, and taxes to pay their expenses, should the country need them. Before this law was passed, lands were so cheap that every man of real energy and industry could obtain a homestead if he tried, provided he could raise the means to get on to the land. This will be the chief difficulty now. Hundreds and thousands of families to whom the land would be a priceless boon will never be able to reach it. They have little forecast, are poor and in debt, and pretty much discouraged. They can not find constant employment, and do not know how to employ themselves profitably. If associations could be formed for settling these lands in part by such families, it would meet the difficulty. It would help them, without damaging the success of the new settlement. It would secure to them at once homesteads and full employment, which they so much need.

Many questions are asked concerning this new law by those who desire to avail themselves of its advantages. A careful reading of the law, which we publish, will answer many of them. The lands are to be found in Michigan, Wisconsin, Iowa, Minnesota, Missouri, Kansas, Nebraska, Texas, and on the Pacific, in large extent, and some still in Ohio, Indiana, and Illinois, though they are probably not of a very inviting character. The lands lying along railroads are of double price, and on account of the proximity to market, are perhaps cheaper at that rate. Only eighty acres of these can be taken by one individual.

The old pre-emption laws are still in force, and a man may locate his land holding by these laws until the 1st of January, when he can hold by the new law. There are land offices in the vicinity of all these public lands, where the applicant can make known his wants and secure his homestead. It will be seen that the matter involves either the expense of a personal visit, or that of a delegate, which is a serious obstacle to the poor. The best thing that can be done, probably, in all cases by those who wish to avail themselves of this law, will be to form an association for the settlement of a township, say a hundred families or more, and send out an agent to examine and locate the lands in a body. The advantages of planting a whole christian community in the wilderness at once, over private emigration, are too apparent to need mention here.

A word of counsel: A farm for ten dollars is not particularly cheap. It is the raw material of a home. Houses, barns, fences, roads, bridges, churches, school houses, and other public buildings, are to be provided after the colony is located, and these things bring heavy taxes upon every individual for a dozen years or more. A man getting a living at the East should think twice before he goes into the wilderness. It is young men just married, or about to be, men with large families and scanty means of living, and professional men with small fields of labor, that can take this step with the best prospects.



POINTS OF A HORSE.

NAMES OF POINTS WITH THEIR DISEASES.—1. The Muzzle including the chin, (2) lips and nostrils; 3. the Jaw; 4. the Jowl; 5. the Nose; 6. the Eyebrow; 7. the Eye, (the seat of various diseases causing blindness, weakness, flowing, etc., including glass eye, cataract, ophthalmia, exostosis, etc.); 8. the Forehead; 9. the Ears, (affected by inflammation, causing deafness); 10. the Poll, (the seat of poll evil); 11. the Crest, (sometimes spongy and fat, and affected by mange); 12. the Withers, in which sometimes occurs fistula; 13. the Shoulders; 14. the Elbow, often injured, the seat of tumors; 15. the Back (saddle galls, sit-fasts, warbles, etc.); 16. the Girth, (broken rib), 17. the Belly; 18. the Flank; 19. the Throat (sore throat, laryngitis); 20. the Gullet; 21. Jugular vein; 22. Windpipe (bronchitis, injury from collar); 23. Point of Shoulder (contusions, lameness, and sprains); 24. Breast or bosom, (various internal diseases, chest founder, broken wind, etc., are located within the chest cavity); 25. the Elbow Joint; 26. the Fore Arm; 27. the Knees, (knee-galls, abscesses, broken knee—by white spots showing a tendency to stumble, knock-kneed, bow-kneed, weakness of the joint, etc.); 28. Cannon bone, (splents); 29. Tendons, often spongy, knotty, and the seat of wind galls and other injuries; 30. Fetlock Joint, (the seat of swellings, osseous enlargements, stiffness, wind-galls, etc.); 31. the Fetlock; 32. the Pastern (ring-bone, fracture, wind-galls, cracking of the skin, etc;) 33. Heels, (grease); 34. Loins; 35. Croup, (occasional dislocation); 36. Dock, (injury by the crooper, and mange); 37. Rump; 38. the Hip, (bruises, wounds, and fracture); 39. Quarters; 40. the Stifle, (subject to dislocation, bruises, sprains, and whirl-bone lameness); 41. Thigh or Gaskin, (sprain, string halt); 42. Hamstring; 43 and 45. the Hock, (blood spavin, bog spavin, bone spavin, capped hock, thorough-pin, curb, etc.); 44. the Hock-bone; 46. Corona; 47 Toe; 48. Walls of the hoof, (the Hoof, the seat of numerous diseases, must be explained on another occasion); 49. Sheath, (often foul).

The Horse of all Work.

It is a difficult thing to determine exactly what should be considered a perfect horse—for the perfection of any domestic animal consists in its adaptation to the service required of it—be it ox, cow, sheep, swine, or horse. The English hunter is as near the type of a perfect horse of all work as can be found. It is particularly necessary for farmers who breed horses to study their points, particularly with reference to sires. A breeding horse should be sound in all respects, except blemishes caused by accidents or violence, or by sickness which was neither inherited nor can be transmitted. A good horse is moderately short-backed (12 to 34), and long below (17); round barreled and well ribbed up (16); rather high in the withers (12); having moderately sloping shoulders (12 to 23); a broad chest (24), a firm, and muscular crest (11), a head well set on, lean and bony, with a clear, bright, medium-sized, intelligent eye, an open, thin, broad nostril, clean muzzle, and small ears; his rump (35) should be straight, broad, and full; his loins (34) broad; legs above the knee (27) or hock (43) long and muscular. All the important muscles of the extremities are located above these points, and below them they should be short and bony, and the tendons (29) hard, and free from soft spots or excrescenses; the leg bones large, flat, and smooth; the pasterns (23) not too long or oblique; hoofs hard, clean, deep, (not flat) round (on the ground) and good sized. The knees (27) and hocks (43) should be broad and bony, the quarters (39) large, broad, and muscular, square when seen from the rear, the shanks from the hock to the pastern short, hard, and clean. A horse can hardly have too deep and broad a chest, too strait a back from withers to croop, or too thin and delicate a neck near the head. Under the cut above we give the names of the various parts, and some of the blemishes and diseases of the parts. Many diseases are only known in fancy, and almost all are known by several different names.

Shall we Spare the Crows and Blackbirds?

It is well to look at two sides of a question. We have argued even in favor of crows and blackbirds, and let our correspondent present the other side. Let the enemies of these examine the maws of their victims and report the contents, whither they be young birds, or corn, or beetles. We do not believe that blackbirds eat the young of other birds, but crows do.

To the Editor of the American Agriculturist.

Looking over the *Agriculturist* Calendar for May, I noticed the following: "Birds—Spare them all; put up bird boxes, kill cats that kill birds, allow no guns to be fired on or near the premises." Innocent birds should be protected, and a heavy fine should be paid by any one cruel enough to injure them. No one loves the sweet song of the Lark, the Goldfinch, or any other innocent or beautiful bird more than I do, but such birds as the vile crow and the more hateful blackbird I shall ever be at war with. The crow will rob the blackbird or any innocent bird it can find or catch, and the blackbird will do the same as far as it is able, and for this reason I shoot all the blackbirds and crows that I can hit with my rifle. I never shot a crow for pulling corn, but have shot dozens of them because they rob and kill innocent birds. So too with the blackbirds, I often have watched them fleeing from two or three little birds that they had robbed. It is idle to talk of saving the birds by ceasing to destroy crows and blackbirds. They are the very worst enemies that birds have. I am tired and out of patience with the almost eternal cry of "Save the crows," because, as the New-York farmers club says, they are terrible fellows to kill worms and save the corn. It is true that they will eat a few worms when they come handy and can get nothing else, but they greatly prefer larger game, and when they can find frogs, young chickens, or young birds of any kind, they never trouble themselves about the duty of picking worms out of corn hills; one robin is worth a dozen crows to kill worms, and yet the crow-savers never seem to dream that the crow and blackbird will soon exterminate these useful, innocent birds, as well as many others. As to firing guns, I would say that I shot more than any other man in the neighborhood, and I have frequently heard persons remark that we have more singing birds than any of our neighbors. The report of a gun evidently does not frighten small birds away, else none would be with us.

D. W. F.

Seasonable Cultivation.

There is such a thing as thorough culture, and seasonable culture: it is of the latter we now have a word to say. Seasonable culture cuts down and roots up weeds when they are quite small. It does not wait until they have become so large as to require double the amount of time and strength to subdue them. Least of all does it wait until they have ripened their seeds and begun to scatter them on the wind. Seasonable culture tills plants at the time they will be most benefitted by it. Here, for example, is a hill of melons: the vines a foot long, and the weeds among them a foot high. Now, how long would those vines have become by this time, if the weeds had never been allowed to grow? It will not make amends to cut them down now: they should never have been suffered to grow at all. Work vigorously as you may, the rest of the Summer, you can not catch up. Here, then, is a difference between culture and seasonable culture. Consider this, too. The work of digging out such large weeds injures the melons. The roots will be more or less broken and disturbed, and the leaves, suddenly exposed to the full glare of the sun, will wither. When the plants recover from this shock, and go on again to set their fruit, it will be considerably later in maturing, than it would have been under better management; and of course it will be poorer than if ripened in its own proper season. Does not this instance illustrate a general principle? The rule holds good of nearly all crops. They should be planted in their proper season, and cultivated at the time they most need it. Let farmers learn, if they would thrive, to till no more ground than they can till well and seasonably.

The Manure Heap in Summer.

There is danger lest, in this busy season, the manure heap be overlooked. With the tokens of fertility waving in every field, we are apt to forget that the wants of another year must be provided for. The barn-yard probably has been cleared of its winter store, and but little dung is now accumulating. Yet, that little should be carefully husbanded. As manure heats and wastes by decomposition in hot weather faster than in cold, provision should be made for saving it by the use of absorbents. At every leisure hour, the farmer's team would be well employed in gathering up sods, scrapings of the road-side, leaves, rotten logs and stumps, and whatever else will decay, and carting the same into one corner of the barn-yard. Indeed, it should be a standing order for every member of the household to save and gather up everything that may answer a good purpose in the compost heap. How a heap will grow, when every one contributes something to it! With a pile of absorbents near at hand, they will be used. The liquid parts of the manure will be taken up, and the solid parts prevented from fire-fanging. Let these various articles be worked over, half and half, and the whole bulk will be worth as much as the same amount of simple manure. By Autumn, there will be a fine provision for enriching the grain-fields and for top-dressing grass lands.

A few Words for Muck and Peat.

Some persons who seem to question the usefulness of these articles, would hardly continue to doubt, if they considered well of what they are composed. They consist largely of half decayed vegetable matters which grew long ago on the spot, or were washed in from the adjoining high lands. Being covered up, layer upon layer, their decomposition has been quite slow. They also contain certain mineral elements which have leached in from the surrounding soils. But, aside from these fertilizing elements, peat and muck when dry possess great attraction for ammonia. Absorbing this from liquids and half solids, they store it up for the food of plants to which it may hereafter be applied.

Now, when we walk over a farm on which the high lands are light and nearly exhausted of their fertility, and yet find in the low lands deposits of peat and mud and muck, is it not a plain case that this farm is in a measure upside down, and ought to be set on its feet again? Some of its fertility, no doubt, has been carried off in the crops raised and sold, but much still remains behind, though down in the bogs and swamps. It has been traveling down hill perhaps for centuries, yet with so slow and silent a step that the farmer has not noticed it. The laws of nature have carried down the fertile elements, but theory will not bring them up again. Man must do that. Here is a field for his ingenuity and industry. His lands are not wasted beyond recovery, if he will only bestir himself and follow the hints which nature gives him.

Doubtless, it would not be best to apply this peat and muck in the crude, "sour" state in which it is first dug from the bed. Let it have the ameliorating influences of heat and air, and perhaps of frost. Spread it in large, long heaps on the uplands. Mix it with lime or fresh ashes and let the heap lie several months. Or again, dry it, and afterwards cart it under a lean-to of the barn, where it may be used to absorb the liquids of the stables. Then spread it on the hungry fields, and they will clap their hands for joy, and the hills will be joyful together.

Spontaneous Vegetation.

To the facts mentioned by our correspondent SCHOLASTICUS, on page 178, a multitude might be added from almost every farmer's observation. Clear up a piece of woodland, and a new class of trees comes in—very rarely the last that occupied the soil. Burn it over, and very likely raspberries, whortleberries, and mulleins will start up, though these plants have never before been seen within miles of the place. Throw up mud and peat from almost any swamp, and let it lie a year or two, it will be covered with vegetation unlike that in the immediate vicinity. How do we account for these facts?

Men of skeptical minds jump to the conclusion, that they do not grow from seeds, because they did not see them planted, and from the known circumstances they could not have been planted in their day. They think the soil must have the power of spontaneous generation, and of course infer that the world made itself, and all living things began their existence spontaneously. There is no need therefore of a Creator.

We have no evidence in these, and kindred facts, that every plant does not spring from seed. It is a well known fact that the surface of the earth, far below the ordinary depth disturbed by man, has been subjected to very great changes. Surface soil filled with seeds of all kinds of grasses, herbs, shrubs, and trees, has been commingled with the soil away down in the depths of the earth to the solid rocks, often many thousands of feet below the surface. The agencies which have done this are still in force. Earthquakes, volcanoes, floods, land-slides, etc., are the more obvious causes, because violent in their operations, but the trickling rills on the mountain sides, and the constant flow of many waters toward the sea, taken in connection with the never ceasing action of the tides, effect much more. The Mississippi River and its tributaries are displacing many acres of soil, loaded with seeds, every day. Seeds produced in the Rocky Mountains, by this agency, find their way to the Gulf, and are spread all over the Delta. Some lodge on the surface of the overflowed land, and germinate with the subsiding waters. Others are buried at different depths, clear to the bottom of the Gulf, and may be thrown up by the diggers of wells, and Artesian borings, hundreds of years hence, to astonish the natives with strange vegetation, and the "creative" powers of the soil. No casing has ever been invented so good as the soil to preserve seeds. No man can tell how long seeds will keep well in it.

What is going on, on a grand scale in the great valley, is going on along the banks of every rivulet and brook. The running water is all the while transporting seeds, and depositing them in new localities. Every depression that gathers mud for a swamp, gathers seeds in great variety, and has been gathering them for centuries. A great many die, but enough live to cover any patch of mud or peat with a new vegetation.

Besides these agencies for distributing seeds, we have birds and animals. The seeds of many of the berries have a covering so hard, that they resist, successfully, the gastric juice of the stomach. The berry eaten to-day upon the mountain, is ejected many miles away to-morrow in the valley. Some plants, like the burdock, have little hooks attached to the seed, and are ready to fasten to every moving thing for conveyance to a new location. Many have wings attached to them, so that they are blown for miles by high winds. Nature is prolific with seeds, every plant producing abundantly after its kind, and almost as lavish in providing the means of distributing them far and wide.

It would be very strange if every newly exposed patch of soil did not produce new kinds of plants. Salt springs and lakes were once the bed of the ocean, no matter how far they may now be from the shore. We should expect to find plants belonging to the sea-shore, near salt springs. The bottoms of lakes, and ponds, are strewn with seeds that have been accumulating for ages. Give them light and heat, and they germinate. Seeds of white clover lie dormant for years, until gypsum, sown upon the land, or some other cause induces germination, and "brings in clover." The seeds of sea-side plants, transported by birds, or dormant in the soil, wait only the salt-water influences afforded by salt springs to start up and flourish.

Irrigation.

BY JOHN B. WOLFF, COLORADO TERRITORY.

The subject of irrigation has been discussed but little by our agricultural societies and papers; and yet it is to my mind one of the most important, not only to countries like this, where there can be no dependence upon seasonable rains, but to every country where the seasons vary from wet to dry, sometimes causing a surplus, at others, putting us on short allowance. "Give me neither poverty nor riches," but a regular and uniform supply, should be the prayer of every farmer. Fluctuation in produce must ever cause fluctuation in price—excess is not to be dreaded as deficiency; and if by any means we can prevent with certainty, any serious deficiency, we have gained the ultimatum of human effort in supplying human needs. It is well known to your readers that there are many places where the only supply of water is by artificial means. In those places crops are regular and certain. If then the same plan can be made available to any considerable extent in other countries, in dry seasons, we have gained an important point in securing a fair supply. It will be my business now, to endeavor to awaken attention to the subject by setting forth the modes of irrigation in different countries, to point out the most improved plan, and to exhibit in a favorable light, the advantages of this method of farming, even where rain is abundant.

If we go back to the early history of Egypt, we find that the flooding process was employed, as much perhaps for the fertilizing effect, as the moisture. In the early days of Mexico, the same method was adopted. This method is still practiced in New-Mexico, and has been adopted in this territory to a large extent under the administration of Mexicans employed for that purpose. But as yet, little irrigation is done here. Our farmers have contented themselves with the selection of damp spots of ground, for the main crop, and experiments on high lands without water. Nearly every such experiment has failed; and they must continue to fail until the seasons change, though there may be spots where small grain can be raised on high ground by deep plowing. I presume Egypt has not changed, but the more intelligent agriculturists of Mexico [and the rest of the world, too,] have abandoned the flooding plan; and it remains for Americans to bring methods of irrigation to the highest degree of perfection. Imperfect as is the practice in New-Mexico, the

most prodigious results are produced: onions are raised there weighing 2½ to 3 lbs.; these are from Mexican seed; the American annual onion sometimes reaches 2 pounds weight.

When the flooding process is used, all the ground is surrounded with embankments to retain the water, say 12 inches high. In these embankments there are openings for ingress and egress; the water is let on, and allowed to remain until the ground is thoroughly soaked; it is then drawn off. The result of this is the deposit of sediment, baking of ground around the roots and tender plants, and an immense amount of labor to put the ground in order again. When this plan is applied to field culture, you may calculate, if you can, the labor necessary to raise a large crop. By the time the ground is in order it is time to let on the water again, and so on through the season. This method was formerly adopted in Utah, but I am told is gradually going out of use, and much of their small grain is raised without irrigation.

The writer saw at once that this plan would not suit on an extensive scale, and that it was not the best method on any scale. He therefore adopted a plan which is destined to supersede, in this territory, the plan of New-Mexico. Grounds requiring irrigation must be so arranged that the water will flow slowly through furrows prepared for the purpose, so as to give ample time for it to penetrate the entire soil. Head and tail ditches are constructed, at convenient distances, to admit the water, and conduct the surplus to other points where needed. Corn and potatoes are easily irrigated by a central furrow made with a shovel-plow; small grains by furrows run 2 to 4 feet apart with a similar instrument. All small crops—roots, etc.—planted 18 inches apart, admit a small furrow with a hoe. Thus the water can be applied to the roots without touching the top of the plant, or causing the ground to bake. The demand for water can always be known by digging with a hoe or spade about the plants. As there is a time for all things, so there is a time for the application of water. The best rule is to keep the ground regularly moistened until the plant approaches maturity, when the supply should be diminished or cut off entirely until it is fully ripened.

It is always best to have a pool at the head of the main ditch to collect and warm the water; the same result may be obtained by a long ditch and slow motion to the water; but this is not an absolute necessity when the water is applied to the roots alone, nor is it a necessity to irrigate in the evening or night only; on the contrary, the process may be continued all day, without any apparent disadvantage. In order to avoid the evil of second growth in potatoes, or the formation of small ones on the main tuber—I select those varieties free from any such *constitutional tendency*, (the blue Meshannock is objectionable on this account.) Round potatoes are generally best. Then I would make the rows, (drills or hills), 4 feet apart, plant deep, and hill but little; then by running a center furrow, the water will be absorbed in larger quantities, the roots kept moist longer, and the growth necessarily more regular. I am thus particular about the potato, because this crop is so easily spoiled by an excess of water, becoming insipid and almost useless. Size with loss of quality is gained at a great sacrifice, and notwithstanding the immense yield and enormous size of our potatoes, but few raised in this country are fit for table use; they are generally too knotty and watery. These defects are produced by planting in low, moist, rich land, where the supply of water is too great and continued too long—until the frost kills the tops while the plants are in full vigor. It is an absolute necessity in the production of good potatoes, that the supply of water be withheld in time to stop the growth and allow the tuber to ripen before the tops are entirely killed by frost.

I have kept no accurate account of the extra expense of irrigation; but when I consider that the soil is made to yield its utmost capacity with uniformity, and that the hands irrigating can always do extra work enough to pay expenses, I am decidedly in favor of systematic irrigation, and never shall own a farm without facilities for irrigating a considerable part thereof. To the advantages already enumerated, may be added this, that the soil is continually enriched by the mineral, animal and vegetable matter contained in the water; while the extra crop produced always enables the true farmer to return to the soil greater quantities of fertilizing manures.

Reservoirs and ditches once well made, last for ages; the water may, in many cases, be used for threshing, grinding, churning, etc., etc., and afterwards applied to the land, and in many places the reservoirs may be made both ornamental and useful, by raising fish in them, and that too with little or no additional expense.

There are here few farms without the means of irrigating at least a part. All our low lands are capable of being arranged for and supplied with water. Suppose every man who owns a living spring, rivulet, creek, or has land on the river bottom, to be in a state of readiness to use the water judiciously, what would be the result? 1st, scarcity would be an impossibility. In a season when rains seldom fall, crops must be short; and a farmer can make more on ten acres well tilled than his whole farm would pay in ordinary seasons, besides the security of *seed time* and *harvest, bread* and *meat.* 2d, The moral effect on himself, family, and the world at large will more than compensate for the extra expense. 3d, The expense of culture is less, proportionately. 4th, Less land will produce the ordinary amount; the balance can rest. 5th, Smaller farms, better culture, and greater certainty, will open the way for supporting a denser population, both of producers and consumers.

Let any man who doubts these statements take one, two, or three acres, make the experiment, and report the result for the benefit of his fellows. Too little attention is given to this subject; frequently whole districts are in a condition of starvation, as was the case in Kansas, solely because they are not prepared to use the means nature furnishes bountifully. From my personal knowledge of the Kansas River and its tributaries, I do not hesitate to affirm that in the valleys of those streams four times the amount necessary to support the entire population of the State could have been produced. And yet Kansas begged for seed and bread. Except on rivers the water is easily diverted from its accustomed channel, and directed where needed. In many places a few feet of spading, a small dam, and the plow does the balance as fast as a team can walk. The water itself furnishes power to lift water for irrigation—wind mills may be made to do the work, and rather than the population should starve or beg, horses and cattle could be used to advantage where the water required lifting only a few feet. But usually the fall in the stream furnishes all the conditions necessary. With the great amount of fertile soil in our valleys, how easy it would be to secure ourselves against want and dependence.

The fact is, by concentrating labor on the valleys in time of drouth, pinching scarcity need never be felt. This subject appeals not alone to the selfish propensities of humanity, but will be appreciated by the true philanthropist—one who comprehends the moral effect of plenty; both on the buyer and the seller, and the absolute necessity of a regular supply of food and raiment to human progress.

Raising Turnips.

It is altogether too late in the day to question the utility of the turnip crop. The raising of those varieties wanted for table use, is no unimportant matter. We could almost as soon think of Thanksgiving dinner without the turkey, as without the savory dish of early white Dutch turnips. Carefully stored in the root cellar, or put down in boxes of sand in the common house cellar, they will keep fresh and juicy all winter. For spring use, commend us to the purple-topped Swede, or rutabaga. We do not recommend any of these as being particularly easy of digestion; but, eaten in moderation, they serve as a good relish and accompaniment to other food. For stock feeding this root is of great value. For producing milk, for fattening, or for keeping up the general health of cattle, swine and sheep, through the cold season, their importance is not easily over-estimated. It is a great economy to use them especially in seasons where there is a scarcity of other fodder. A leading English agriculturist once said that the failure of the turnip crop there would be a greater blow to the nation's prosperity than the failure of the Bank of England. Nothing like this would be true for our own country, perhaps; yet it is a fact that the turnip crop is one of great importance.

The first of this month is in time for sowing the Rutabagas and Swedes, but a longer season is desirable if wanted for stock feeding. With other varieties we may follow the old adage,

"Twenty-fifth of July, sow turnips, wet or dry."

But this, like other adages, must be taken with qualification. Sow the seed in July whenever the ground is moist enough to give the seeds a quick start. The land should be rich, clear of weeds, light and warm: a black muck, rather sandy, is best. If a piece of newly cleared land can be found, turn it over and sow on that: the crop will be quite sure. The seed germinates quickly, and insects are less troublesome than on old land. Next best is swarded ground. The soil having been worked fine, sow in drills half an inch deep, fifteen inches to two feet apart, and at the rate of one and a half pounds to the acre. Abercrombie says: "half an ounce to every hundred square feet." The seeds will germinate in from thirty six to forty eight hours.

As soon as the plants are up, look out for weeds and insects. Work the drills with cultivator or wheel-hoe, and the rapid growth will reward all the labor. When the plants have made rough leaves an inch broad, hoe them and thin out to six or eight inches apart. Continue the thinnings afterwards, until the roots finally stand eight or ten inches apart. If a little plaster is sown broadcast over the plants when well established, it will give them increased vigor.

To destroy that great pest, the fly, some use soot, ashes, or air-slacked lime, strewing it on the leaves when wet; but warm, moist weather will soon carry the plants beyond the reach of flies. Still, if the insects persist, and the young plants are eaten up, dig up the ground and sow again.

An Illinois farmer, speaking of the expense of living at the West says: "It will vary with the size of the family, and *their propensity to gratify pride,—an expensive article in a new country.*

To Improve Sandy Soils.

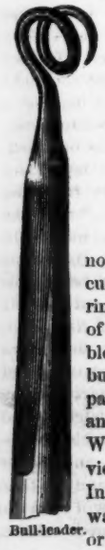
The defect in such soils is chiefly of this sort: They are mechanically defective, being so light and porous that they can not retain moisture, or manure, if applied. Besides, they are generally wanting in various important elements of plant growth. Therefore, to improve them, we must endeavor to supply these radical defects. The first point can be gained by spreading a coat of clay over the surface and dragging it in. This will improve its texture, and will also impart fertility. Adhesiveness and strength having been gained, manure from the barn-yard may be applied as fast as it can be procured. Another method is to dress such lands with rough composts. Prepare the heaps at leisure, in the barn-yard. The ingredients may be such as these: ten loads of stable dung mixed with five loads of clayey soil, twenty bushels of ashes, and the same amount of lime. After these articles have been well incorporated, let the mass lie for a month or two; then it will be ready for use. Such a compost, it is easy to see, will be more enduring, and better in all respects, than the same bulk of barn-yard manure. It will improve the quality of the land permanently, and will enrich it with a fertility which will be very lasting. On every farm of the kind here supposed, there should be one or more compost heaps of some sort *constantly* building.

A Ring for the Bull's Nose.

A young bull is sometimes very handsome, and a very pleasant thing to pet and fondle. Sometimes children cosset and handle him in the pasture and yard for a year or two, when suddenly, the animal turns upon them, first in play, and then in fury, and they hardly escape with their lives. Not a year now passes, in which we do not hear of some farmer who, being in the field among his cattle, is set upon by his fine bull, tossed in the air, gored to death, or in some way wounded more or less severely, and perhaps maimed for life.

The only safe way to handle these creatures, is to put a stout ring in the nose of each. When this is once done, it is for life. The operation is not so cruel as some imagine, certainly no more so than the barbaric practice of boring our children's ears, for hanging rings in them. (Why

Bull-ring.



Bull-leader.

not bore their noses, as well?) Get a cutting punch a little larger than the ring to be inserted, and the cartilage of the nose can be perforated at a single blow, and that with little pain to the bull. Then put in the ring, screw the parts together, (as shown in the cut,) and the wound will soon heal over. With this simple contrivance, the most vicious animal can be safely managed. In leading a fractious bull, it is always best to have a stout, six-foot, ash or hickory staff upon which is a spirally bent end of iron, called a "twist hook," or to which, by a few links of a chain, a "snap-hook" is firmly attached. A bull will never tear his ring out while being held or led by hand. Tied to a post, or behind a cart, sometimes by a sudden start he will tear out the ring before he realizes what he is about. In such a case, if seized at once by the nose, he may be held. But no animal should ever be fastened in this way. A rope around the horns is the proper fastening, and if by any means this gets loose or breaks, then the ring will generally hold. The ring affords an easy means of getting hold of a fractious bull in a pen, box stall, or stable, by means of a "bull-leader" as described and shown in the cut. What farmer or patriot will not say: Anything, oh! anything, to prevent a Bull-run, whether on the farm or the battle field! The "leading-clasps" are of various forms, in general, however, like the one shown in the cut annexed, and differing in the manner in which they open and shut, and are held shut. The ball-tipped ends separated, are placed within the nostrils, and are then closed together, space being left for the cartilage of the nose between them. They can not be unclasped by any action of the bull, nor torn out without subjecting him to as great pain as if a ring were torn out. These clasps are very convenient for leading any neat animal which is not perfectly docile. When there is any doubt who is master, a ring or leading-clasp affords to the mind of the animal a very ready solution of the question. For bulls, however, the permanent nose-jewel above described is decidedly preferable.

Leading-clasp.

Notes on the May Agriculturist.

BY A WESTERN FARMER.

Central Park Conservatory, p. 133.—One of the best things possible—and the Parsons are the very men to manage such an enterprise honorably and successfully. With a few other attachments, such as an arboretum, a herbarium, an aquarium, and a zoological garden, as we hope some day to see, the New-York Central Park will become the most attractive spot in North America.

Six Good Pears, p. 133.—I can name six *better* ones: to wit.: Bloodgood, or Osband's Summer, of which you may take your choice, or have both, for early; Bartlett, White, and Gray Doyenne, or Virgalieu—if you can grow them without cracking; Brown Beurre, Seckel, Winter Nellis, Glout Morceau. These will all grow on the quince for dwarfs, as well as the "six good ones," if double worked—if folks will insist on having dwarfs—and they flourish finely on standards. Why our nurserymen will continue to laud up such coarse and flavorless things as the Duchesse, and Vicar, I can't imagine, only that they are showy, and succeed better on the quince than almost any thing else. As table fruit they are worthless, and for cooking, decidedly inferior to a score of others. [But the fruit *sells*, sometimes at a dollar a pear.—ED.]

An Agricultural Bureau—Who shall be at the Head of it, p. 136.—Nobody—unless he can be better than any thing who has yet figured in that department. Genl. Banks may be a good man for aught I know, provided he'll throw aside his politics—when he gets there. Such an office needs a common-sense man, whose tastes and proclivities are decidedly agricultural, and has gumption enough to discriminate between the pretensions of quacks, and honest, well-tried experience. The *trade* of administering such a Department of the Government, has yet to be learned by whoever may be the incumbent, and the office should not be one of rotation, or removable without cause.

Dead Animals for Manure, p. 140.—True, every word of it; and if men would only believe such things, thousands of dead carcasses which every year pollute the air with their putridity would be turned into the most fertilizing materials.

Tim Bunker on the Horn-Ail, p. 140.—"Tim" is a great man in his line, and utters a deal of homely truth in his neighborhood observations. But, somehow or other, Tim's grammar and style have wonderfully improved of late. I think he must have been taking evening lessons in spelling and punctuation of his district schoolmaster.

The best Team on the Farm, p. 140—You can't make a northern farmer drive a mule team, unless he goes off South and couples "niggers" with his mules, and then he becomes a worse "driver" of both than him "to the manor born." Off South, the mule is decidedly the best and most profitable team. I have seen scores of arguments, *pro* and *con*, as to the best and most profitable teams for northern farmers to use, and the advocate of each was right or wrong—according to circumstances. On *good* lands, and free soils, horses are best. On poor lands, and over rough soils, oxen are preferred. Horses are indispensable for marketing purposes, where a man's time is worth any thing. In my own practice I have always used both, finding each preferable for certain kinds of labor. Every man must judge for himself, by his own experience, which of either, or both, he is to prefer. The whole article is capital.

A few Hints about Plowing, p. 141.—A good article. But after all, the farmer must *know* his soil, to understand the best manner of plowing it. Heavy clays require a different mode of plowing from friable loams, or gravels; and the natural, or acquired fertility of the soil has much to do with it also. I know lands where you may bury the plow to the beam, and all the better for it, while in others six inches is abundance. One may theorize until he is gray, and never draw a right conclusion. Experience, *with* theory, is the sure way to test all things.

Sorghum Syrup far North, p. 143.—I doubt whether this can be made a paying crop north of 41°. The cane requires a long summer and a hot sun to develop its saccharine to the utmost. We have millions of acres of the best sorghum lands at about 41°, and one or two degrees south of it; and while they are *sure* for its growth, it is hardly worth while to run much risk for a *chance* crop north of it. Better work our lands with something that is *certain* in production, and exchange that, or the avails of it, for the *uncertain* ones that we need.

Timothy Mowing-Lands, p. 143.—Partly true, and partly not. Timothy is *not* "a poor pasture grass," and "every body" *don't* "know it." I assert it to be among the *very best* of pasture grasses, and if anybody don't believe it, let him turn his stock into a field of mixed grasses, and wherever the timothy predominates, see how eagerly they will crop it in preference to the others. Timothy can be fed too close, I acknowledge, and it should *never* be fed in the Spring of the year. Nor should *heavy* stock ever be turned upon it when the ground is soft, as late in the Fall or Winter, for their heavy tread will *poteh* and destroy it. I have had timothy, with other grasses, in pasture for more than twenty years, where it holds its own with them, and has been pastured with every thing that eats grass on the farm. *My* rule is always to sow a good share of timothy on both pasture and mowing lands when I lay them down with red clover. The blue grass and white clover will come in of themselves where the land is natural to them; and so will red-top, on moist grounds—one of the best of our grasses for either pasture, or hay.

The Apple Orchard, p. 145.—A good article, and to appearance, by a practiced hand. As to varieties for cultivation, no positive rules, irrespective of soil,

climate, and locality of the orchardist, will apply. The demand of the market, and the varieties most favorable to the soil and climate, must measurably govern. A good apple in one place may be worthless in another, and no man's *ipse dixit* of a "best selection" is worth a copper for *all* localities. I need not go into particulars to prove the truth of this; but if any one doubts it, let him try, and an experience of a dozen years will show him that he has fooled away a good share of both his time and money. I am this Spring grafting over many well grown trees with sure and productive kinds, in place of the *fancy* things that I was thoughtless enough to put in because some partial ignoramus made me believe they would do well with me, because they were favorite kinds three hundred miles away. The table of "best apples for different localities" is useful, and no doubt reliable, as founded on the experience of those who "voted" them. [These remarks may as well be applied to pears.]

Crinoline Flower Pots! p. 149.—Well, what next? I thought the "wimmen" had all the *crinoline* to themselves; and if the flower pots are coming in for a share of the article, where will it end?

"*Hulled Corn.*"—Yes; it used to be good in my boyhood, when potatoes-and-milk, bean-porridge, johnnycake and brown bread were every-day edibles on the table. But since wheat flour and rice have got to be plenty and cheap, our housekeepers have found out that it is "too much trouble" to make the "hulled corn." Yet, it is good, I admit—if you can get the "ley" taste all out of it. But, as things go, I never expect to eat a dish of hulled corn again; and I don't know that I shall cry about it, either. I don't believe even "Aunt Mary" cares much about sweltering over a pot, with her ash-barrel and ley kettle lumbering up her washroom, for the sake of getting up a dish which the majority of her "young folks" will be inclined to turn up their noses at when they find out that "poor folks" lived on it fifty or a hundred years ago.

Buckwheat—Its Place in our Agriculture.

Buckwheat fills a place in our list of crops that no other plant can. It has the name of the lazy man's crop, from the little preparation the land needs for its cultivation, and the ease with which it may be grown. This is perhaps the chief objection to the crop; it favors slack husbandry, and yields a remunerative crop so long that some lands have been entirely run out by cropping with it. You can skin land more effectually with buckwheat than with any other crop. On this account, and some others, the crop is not a favorite one with many of our best farmers. It is said to poison the land for corn, and the cases are pretty numerous where corn following buckwheat has failed. The succession is certainly not to be recommended. The seed also remains in the land for a year or two after it is sown, and makes its appearance among subsequent crops more than any other grain. To the farmer who loves clean seed, this is a serious objection. It can be remedied by following it with a hoed crop, or by stocking down to grass.

Buckwheat may be sown where other crops have failed, or could not be planted on account of the wetness of the land, or lateness in its preparation. It is usually sown from the middle of June to the middle of July, the latter month generally being preferred, where the object is to get grain. If sown too early, there is danger that the grain will not fill out well in the hot weather of August. If too late it is liable to be cut off by the early frosts.

The yield is generous, even on soils where other grains would not pay. But we doubt the policy of growing this or any other grain without manure. There is no crop, not even turnips, to which Peruvian guano is so well adapted, and on which it shows such marked results. We have seen a heavy crop grown on exhausted land with only a bag to the acre. From ten to fifteen bushels to the acre is a common yield on rather poor, though not exhausted, land. With the guano the yield is frequently doubled. Where this is the case it makes a very handsome profit on the manure. But it is only in special emergencies and where there is a deficiency of farmyard manure, that guano is to be recommended. The like benefit will not accrue from its use the second year upon the same land.

It is an excellent cleansing crop, where land has become foul with charlock, wild worm-wood, Canada thistles, and other weeds. It grows so rapidly that it gets the start of all other plants, and keeps it. It completely shades the ground. It is for this reason that it is so often sown upon swales, and brush pasture recently cleared, where there are many coarse clods. The roots and sods are kept moist by the shade, and decomposition goes on rapidly. It is well adapted to newly cleared lands full of vegetable matter.

Buckwheat stands high among the plants to be turned in for manure. It matures so rapidly that two crops can be turned under in a season, or a crop of clover, and a crop of buckwheat following. It does admirably well to precede a crop of rye. It may be sown any time before the first of this month, turned in the last of August, and the rye sown soon after. It is claimed by those who have tried the experiment for several years, that a crop of rye may be taken from the land every year by this process, and the soil all the while improve.

Two to four pecks are ample seed for an acre, the less quantity being used on rich land. For feeding, it is nearly equal to Indian corn. John Johnston, who is authority in fattening cattle, prefers a feed of one half buckwheat, to one wholly of corn, at the same price. It is used extensively for fattening poultry and swine, both whole, and ground with other grains. A very common provender in New-England is oats, corn and buckwheat mixed in equal parts and ground. This is mixed with potatoes for swine, and with hay for working horses.

Tobacco Cultivation—No. V.

The tobacco fields have, by the first of July, escaped the dangers of infancy, and though many a plant has become a "cast away," or fallen in the field of conflict with worms, sun, and storms, the thinned ranks have been filled, and raw recruits are making up for lost time. Hot-days with occasional showers, cause tobacco to "grow like a weed." There is little danger of dry weather injuring the crop, if the ground has been well prepared, and the surface is kept stirred so long as it is possible without tearing the leaves. After this, the thick leaves so shade the ground that it is kept moist.

The hawk-moths or sphinges begin to fly in July, or perhaps earlier, but at this time are first particularly noticeable. The *Sphinx Carolina*, (the hornblower moth,) is the parent of the tobacco worm. It is a very large moth which flies at dusk, seeking its food, which is honey, in various flowers open at night—potato blossoms, wild evening primrose (*Œnothera*), foxgloves, and other garden flowers, but particularly in the large funnel-shaped blossoms of the stramonium or Jamestown-weed, (*Datura stramonium*). This moth is as large and has somewhat the flight of a small bird, hovering about here and there—quick in its motions, not very shy, and resting before the flowers into which it thrusts its long thread-like proboscis, which in its flight is curled up like a watch spring. The moth is of an ash-gray color; fore-wings with blackish, wavy lines; hind-wings, whitish in the middle, with four black bands, the two central ones narrow and jagged; fringes spotted with white; five orange-colored spots on each side the abdomen; the proboscis excessively long. The spread of the wings is often 5 inches. The more there are killed of these moths the fewer will be the worms in the field. The eggs are deposited near the edge of the leaf on the underside, and hatch in about a week. The apple-green larvæ feed very quietly on the under surface for some time, but finally become quite active and ravenous.

Poisoning the Hornblowers.—The moth may be easily killed by watching near some of the flowers mentioned and striking them down. If the common fly poison of the shops, called "*cobalt*," (but really *black arsenic*, though the majority of druggists and other dealers do not know it,) be very finely pulverized, and two ounces be put into a half pint phial, and filled up with equal parts honey and water, after standing a few hours it makes a seductive and fatal beverage to the hornblowers. The best way to administer it is, by means of a little syringe, to drop half a dozen drops in each available flower of the stramonium situated near the fields, and in case these are not abundant, in the blossoms of the other flowers mentioned. It is a good plan also to pick some stramonium flowers and place them, filled with the poisoned nectar, in the tobacco field at the time the moths are laying their eggs. In fact we think for bee-keepers the poisoning should be effected by putting the bait altogether in plucked flowers, which would wither before the bees fly much. Of course since the moths fly only in the dusk of the evening, the poisoning must be done at that time. There are several cases reported of this poisoning being very successful, and we have therefore given the method in detail.

A flock of young turkeys will make way with an immense number of worms, and without doing any special damage to the leaves, particularly if they visit the field in the early morning when most of the worms are under the lower leaves. It is not a very agreeable duty of the field hands to find and crush between the fingers as many of these worms as possible; but to this end the field must often be thoroughly searched through, investigation being made at every hoeing, and oftener, if necessary. When the plants grow too large to be hoed, and the large leaves form in the perfection of which the great value of the crop consists, vigilance must increase. Instead of crushing the worms, when they are abundant we advise *bagging* them, (each man having a pocket or bag at his side). It is less disgusting, and a supply of chicken-meat is thus obtained.

It is in August that the greatest labor and care is necessary to prevent injury from the worms, and it is seldom necessary to "top" the plants before the middle of the same month. In some very forward fields, however, the plants will be ready for topping by August 1st. This is done by breaking off the tops about 2 or 2½ feet high, according to the vigor of the plant. The object of this is to throw into the leaves that force which would otherwise be expended in producing seed. Branches will start from the axils of the leaves, and must be watched and removed continually. The plant should be topped before these "suckers" start, and higher or lower, according to the season, and the time left for maturing the leaves. This will form the subject of our next article on tobacco culture.

The Articles on Winter Wheat.

The committee to whom was referred some 15 essays or articles on the culture of Winter wheat, return two articles, and recommend a division of the premium. One is the soundest and best, but very brief; the other more in detail, but rather old fogyish, and both describe the practice rather of Eastern, than of Western or prairie farmers. The general principles of wheat culture depend upon the nature of the grain, and are invariable. The details of culture vary with the soil and the climate, the danger from insects, the demands of the market, the expense of labor, etc. We are disappointed in not having received, in response to the liberal premiums offered, essays involving more thought and labor, and it may pertinently be asked: "If neither of the articles are worthy of the prize, how can you justify a division of it?" We do not like to go behind the decision of a committee, and besides, there are very many valuable and practical hints and directions in the articles, taken together.

The necessity or great desirableness of underdraining is not sufficiently brought out. The numerous and explicit articles previously published in the *Agriculturist* on this subject, find in this crop important application. The recommendation to provide surface drains, in the second article, was accompanied by a long account of the surface drainage of wheat fields, which we have thought it best to omit. Thorough underdraining with tiles, four feet deep and 2½ rods apart, is doubtless the best preliminary preparation a wheat field can have, unless it be drained by nature, and gravel beds, to such an extent as to render further drainage unneeded. Stone-drains, brush-drains, wood-drains, are each advisable under certain circumstances; and in the stoneless soils of the West, mole-draining by simply passing a "mole" or "mole plow" through the ground at a depth of 20 to 30 inches, is found of great service, affording a means of draining the prairies at a cost of 8 to 10 cents per rod, in a manner which will last for several years.

There can be no doubt that culling heads for one's own seed is exceedingly advantageous. This is done by letting the best part of the field stand to get very nearly or quite ripe, and then going into it and plucking the largest and longest heads, separating the shrunken grain after it is thrashed or rubbed out. It will pay, and where wheat is drilled may very easily be done. This process should be followed up for several years in order to secure the best results—planting culled seed grown from culled seed. The wheat is an improvable plant, perhaps the most so of all our cereals. In this way, new varieties may be originated, with plumper grain, giving a larger yield to the acre, and more flour to the bushel. This process pays well in England, in the higher price such improved wheat brings for seed—frequently three times the price of miller's wheat.

In regard to drilling, our farmers shrink from it on account of the cost of the drill. Necessity or supposed necessity influences a feeling of preference; and so indiscriminate broadcast sowing finds advocates. There is no doubt in the minds of most who can afford to use one, that the grain drill very soon pays for itself. The principles upon which it operates apply to all soils, and the results of its use are very uniformly advantageous.

The use of the reaping machine is gaining advocates very rapidly, as machines come to be more conveniently managed. It is true that lusty cradlers will lay down an acre of wheat in a very short time, with less waste from shelling if the grain be too ripe—and on small farms, or in small fields, with less expense; but when the fields are extensive, the grain in a proper state and the reaper a good one, the comparison of the relative convenience and expense will be in favor of the machine. The same is true in regard to thrashing;—either unskilled hands, a poor machine, or a small quantity of grain to be thrashed, will be a reason why thrashing by the flail would be preferred. Grain caps were commented upon in the June *Agriculturist;* we believe in them, and though not so much needed for grain as for hay, they will turn rain perfectly, and may save the entire crop from sprouting.

The great want, perhaps, in wheat-growing, especially in the older States, is the conviction that the thing can be made to pay. As soon as our farmers can see this, they will learn how to do it. This conviction is growing, we have no doubt, in many of the districts where wheat had been abandoned for a time. It is no wonder that the crop failed so generally in New-England, for it certainly requires more skill, if not more manure, than most other crops. It went out more from lack of manure, than from the multitude of its enemies, though we would by no means underrate the latter. A farmer sowed without manure upon poor land, and got a poor crop, as he deserved to. The trouble was in the man, not in the plant. A few farmers who were willing to do justice to the plant, have never ceased to get a paying crop. Gov. Colby, of New-Hampshire, boasts that neither he nor his fathers ever bought a barrel of flour.

[PRIZE ARTICLE.]

Cultivation of Winter Wheat.

BY J. HOLMES, CHITTENDEN CO., VT.

Wheat, one of the greatest staples of the country, if rightly managed may be made one of the most profitable of our cereals, upon almost any soil. Twenty years' experience has demonstrated to me that we hardly need fail of success, if the following mode of proceeding be strictly followed.

SELECTION OF SEED.

Select none but the best seed of bearded wheat. The White chaff is preferable, it being worth some ten cents more per bushel in Eastern markets. Prepare a strong brine—do not depend upon old beef or pork brine, and wash as long as any filth or immature grain rises to the surface. By this process we shall expel from two to three quarts of foul seed and shrunken grain per bushel, from what would be called an "extra" article. Seed prepared in this manner will send up none but the most hardy and vigorous plants, consequently will be less liable to winter-kill; and as like produces like, we may look for an article in the increase equal if not superior to that which was sown. Add three quarts of dry, fresh-slacked lime to every bushel of wheat; mix up thoroughly two days, or two weeks, previous to sowing. *This is important—neglect the lime* and nine times out of ten you will have more or less smut, which will depreciate the value of the wheat.

PREPARATION OF GROUND, SEEDING, ETC.

The ground, if rich and strong enough, may be sown after peas, otherwise, after summer fallow. In either case, manure on the surface, and plow or drag in with the wheat. I prefer to use about fifteen loads to the acre thus prepared; then, after sowing thinly, to plow it in. The seed, by coming in immediate contact with the manure, receives a thrifty and vigorous start, which it otherwise would not attain. This I think is highly important to insure success. I have never used the drill, but in its stead Ide's cultivator which answers a good purpose. If you harrow in the seed, in no case roll afterwards, as the inequalities of the surface will prevent the snow from blowing off, and the plants will be less liable to be affected by frost. But if covered with a drill or cultivator this precaution is unnecessary, the seed being so much deeper, and the roots less exposed. When the ground is settled in Spring, go over with a heavy roller; it covers many exposed roots and often adds five to seven bushels per acre.

Have the ground well pulverised previous to sowing; it is useless to sow on lumpy and badly prepared soil. In case there is no manure to be had, cover the surface immediately after sowing and before the wheat starts, with a light layer of straw; the wheat in a short time will come through, and prevent it from blowing off. The straw will act as a mulch, and the ground being shaded will retain the moisture; and if the soil is not very poor you may expect a good paying crop. Two and-a-half bushels salt per acre tends to prevent rust, makes the straw strong and bright, and gives the young wheat a dark color. If any one doubts the truth of this statement, I hope he will make the experiment, and my word for it, he will at once adopt the practice. I know of no better mode to prevent the ravages of the midge than early sowing, and even this sometimes fails. The last week in August, or the first in September, I would prefer, but this depends upon circumstances; if the weather is dry and hot, I would rather wait until October. Some years since I made an experiment to test early and late sowing. One piece was sowed the last week in August; one the last week in September, and one the middle of October, on the same kind of soil and treated in every respect alike. There was no difference in the time of ripening or in the quality of the grain, but the earliest sowed produced the longest heads, consequently yielded more per acre.

I do not sow plaster on wheat, as it tends to rust, and increases the bulk of straw but not of grain.

HARVESTING.

Cut wheat as soon as the straw presents a golden appearance below the head to the first joint. The grain will be somewhat soft, but there need be no fear of shrinkage; it will produce more and better flour per bushel than if let stand until it becomes thoroughly dry. Bind in small sheaves; put them in a stook capped with two sheaves securely bound on. Put up in this manner wheat will stand through a long spell of wet weather without any fear of growing. If possible thrash with a machine as it is drawn to the barn; it will save once handling and it may then at once be secured from all kinds of vermin and will be free from filth, which will enhance its value. Of course if the above directions are followed, your wheat will be of such a superior quality that it will be marketed at your own door for seed, which will save the expense of transportation, and will command fifty cents more per bushel than an ordinary article, and in proof of the above theory I will give you the result of two fields treated as I have prescribed. From one acre and four rods, forty three and one half bushels, sold for seed at two dollars per bushel. On the other field I sowed fourteen and one half bushels, and harvested three hundred and fifteen bushels.

[PRIZE ARTICLE.]

Cultivation of Winter Wheat.

BY JOHN S. GESNER, CANADA WEST.

The writer's experience in the cultivation of winter wheat extends over sixteen years upon loamy clay, and four years upon sandy land. I shall give it just as I would *talk* it.

DRAINAGE.

It is absolutely necessary to ensure a good crop that the land be thoroughly drained—underdraining, if done properly, is without doubt the best; but open or surface draining is the most common, and is that upon which my experience has been formed. I think that a field can not be too well drained, not only after it is sown, but previously—and that extra labor in clearing out and keeping clear every ditch, and digging large outlets, is amply rewarded by the extra yield.

SOIL.

A loamy clay I consider the best for wheat. I would prefer four or five inches of loam, with clay subsoil. This I always summer fallow—plow in May, deep as I can, putting on two teams if one will not turn it deep enough, harrow well, cross plow in June, in July cultivate with a two horse *cultivator* or *scrabbler*. The latter part of August manure well, and immediately plow again in 11-foot ridges, cutting narrow, deep furrows.

If the soil be light and sandy I would summer-fallow only in case of a new or weedy piece of land, which I intended to seed down. My way is to turn under a good crop of clover about the middle of June. The clover may be fed off until nearly the first of June, at which time sow about 2 bushels of gypsum (plaster) per acre. This will give the clover a good growth, and will be of service to the coming wheat. Plow in the clover deeply; a piece of chain about 3 feet long fastened to the coulter of

the plow so as to drag in the furrow, will be found of service in helping to turn under the clover. Manure well, and use the two-horse cultivator thoroughly about the last of August, and you have a good seed-bed.

VARIETIES.

My favorite kind of wheat is a bearded variety, known as the "Kentucky White," or "Hutchinson's." I know that bald varieties, such as "Blue Stem," "Soule's" and "White Flint" will, if not damaged by insects or rust, yield the most per acre, but owing to the midge (see *Insects*), I much prefer bearded varieties. Take the earliest, best and cleanest wheat you can get for seed. Depend upon it, dirty seed will bring a dirty crop—I don't believe that wheat will turn to chess.

If any thing should prevent early sowing, I would then sow "Mediterranean," because it will mature here quicker than any other variety, which is quite an item in late sowing. Treatment of seed is the same upon either clayey or sandy soils.

TIME OF SOWING.

The last week in August and first week in September I have found the best time for sowing. In this section sowing later is useless, unless you sow "Mediterranean." Should the weather be very growing, and the wheat getting too much top to stand the deep snows, turn on your stock and feed it off. There is no danger in pasturing wheat moderately, if your land is well drained. In fact, I think it does it good by enriching the soil. The plants should not be nipped close to the ground—but moderately pastured, so as to reduce the tops of the plants to enable them to winter safely.

MODE OF SOWING.

I sow "broadcast," and use a half bushel measure to sow out of. Take a strap, pass it through one of the handles of the measure, (or a hole made for the purpose), and unite the two ends so that when it goes over the neck the measure will be convenient to dip the right hand into. You can thus always know exactly how much seed you are using per acre. On a ridge 11 feet wide, I go and return upon the same ridge. Place the seed in bags in the most convenient places upon the field. A little practice will enable any person to sow quickly and evenly.

QUALITY OF SEED, ETC.

I have found 1¼ bushels per acre enough, when sown early; if sown late (Mediterranean) I would sow two bushels per acre. I have tried brining the seed, liming it, and various highly recommended decoctions, but never realized any benefit from their use. Sow good clean seed, and it need only to be well covered with good earth. Dibbling and drilling in the seed does very well when only a small quantity is sown, and you wish to obtain as much from the amount of seed sown as possible; but when much ground is sown I decidedly prefer broadcast sowing, notwithstanding a larger amount of seed is used. Drilling in wheat, and then hoeing it afterwards, does exceedingly well in theory, but does not succeed so well in practice; every thing must be done nearly right to enable you to hoe without hoeing up your wheat. In fact, when the wheat crop is the main crop of the farm, and much has to depend upon *hired* labor, the simpler and the stronger the working implements are, the better. We raise wheat *to pay*, and if we do not raise as much per acre, if the *profit* is more, the better for us.

HARROWING AND ROLLING.

After sowing, harrow thoroughly—you can not harrow too much,—and put on a good heavy roller. The land is then ready for furrowing for surface draining. I have found it a good plan to roll wheat also in the Spring, as soon as the frost is out of the ground—particularly upon land that the frost has hoven much. It presses many roots into the ground, which would otherwise be killed by the sun. I have also found it a good plan upon a piece of wheat which has suffered much from the action of Jack Frost, but has clumps of wheat still left, to run over it twice in the Spring with a light harrow, and then roll with a heavy roller. It divides the remaining roots, and although *hard looking* at first, the growing crop will soon astonish you with a change for the better. I do not believe in sowing "plaster" in the Spring upon wheat. Plaster should be used, if at all, upon the crop which precedes the wheat. If I thought my land was not rich enough in the Spring, I would top-dress with either stable manure or guano; but I prefer to have the land rich enough before the wheat is sown.

HARVESTING.

I always let wheat intended for seed get *dead ripe*; the rest I would commence cutting before the grain is quite hard. If too green, it makes dirty and heavy work; but when you have a good deal to cut, you had better cut some of it a little green, than lose by its getting too ripe. Bearded varieties always shell very much when dead ripe. If care is used, however, in handling, not so much is lost by shelling as one would at first suppose. When wheat ripens from the *head downwards* you can cut very green without danger of shrinking. I do not, like some wheat-growers, say that wheat is better and plumper cut green, for it is my belief that every crop should come to maturity before harvesting.

Never bind too large. Have the sheaves of moderate and uniform size. Rake thoroughly, as it is very easy to leave enough to pay for cutting and binding upon the ground. In *setting up* or *shocking* I always set 10 or 12 sheaves together in a row, 5 or 6 on each side; I never cap my shocks. If carefully set up, they will stand; and in case of rain, will dry quicker without caps. We often have what is here called *catching* weather—and often grain is damaged. It is therefore the safest to house or stack as soon as the grain is fit.

THRASHING, CLEANING AND MARKETING.

Now that horse power thrashing machines are so easily obtained, the old-fashioned way of thrashing with the "flail," or with horses upon a large floor, is mostly done away with, and the new-fashioned machines are a great advantage to the farmer. I think, however, that wheat for seed is better if thrashed with the flail, and would always prefer it to that thrashed with a cylinder at great speed, which I believe injures many of the grains; perhaps not enough to prevent their growing, but enough to prevent the plant from being as hardy as though the grain were perfectly sound. It is a farmer's duty to clean not only his wheat for seed and bread, but every bushel he sells, thoroughly. On account of the carelessness of too many farmers in this respect, our market for wheat is injured very much. In marketing, as a general rule for at least this section of the country, it is better to sell in the Fall; you save all that would be lost during the Winter by mice, rats, etc., and have the use of the proceeds sooner. Much, however, depends upon circumstances, and a man must use his judgment in the matter; for it often happens that wheat is low in the Fall, with every prospect of being much higher in the Spring. In such case hold on to the grain; but if a good price is offered in the Fall, sell it.

INJURIOUS INSECTS, RUST, ETC.

Under this head I shall be very brief, for learned men have written much upon the subject, which every farmer ought to read. To those who have not, I would say, by all means read the works of Dr. Fitch, of New-York, upon the insects injurious to vegetation. The wheat fly or "midge," does a great deal of damage to late-sown wheat, and is much worse upon bald, than upon bearded varieties. For this reason I always sow bearded varieties. In my opinion the only remedy for the midge is—*to drain well—manure well*, sow early, and sow an early kind of hardy, bearded wheat. In every case where I have done this, I have escaped the ravages of the "midge,"—while my neighbors who have done otherwise have suffered very much. I examined this season a field sown very late with "Mediterranean," the seed of which was mixed with "old red-chaff" (bald). Every head of the bald was completely destroyed by the midge, while the bearded was but little injured; and I firmly believe that in sowing late, mixing in a portion of bald wheat seed would preserve the bearded variety from the "midge." If the wolf (or grain weevil) attacks the wheat, (which it seldom does here, to any extent,) I would thrash out as soon as possible. If any insects survive the thrashing cylinder, I would spread out the grain to the sun, when they will all vanish.

The wire worm is the curse of wheat-growing here. As yet I think no certain remedy for this pest has been found. The best remedy I have tried is frequent plowing and harrowing, both in Spring and Fall, disturbing them as much as possible, never allowing a field to remain too long in sod. Old pastures or meadows are complete nurseries for wire worms. But above all things, cultivate an intimacy with birds. Not only wire worms and "midge," but all kinds of insects injurious to the farmer, are destroyed in countless numbers by the birds; and until we encourage in every practicable way the presence of birds, we may expect to suffer.

I believe rust, like mildew, is caused by exhalations which arise from the ground, with damp fogs, and stimulate the growth of the plant to such an extent as to cause the rust to appear; and I further believe that thorough draining, good cultivation, with the use of hardy varieties, early sown, are the best preventives. Where lands are rich in ammonia, the straw will be ranker and much later. I should in such cases sow about two bushels of salt per acre just before any danger of rust.

In conclusion I would say that I consider 35 bushels per acre a fair crop. If every thing is right, more per acre will grow; and I have no doubt that the day is not far distant when, wheat-growing having become more of a science, 50 and 60 bushels per acre will be called an average crop. There is one thing I am convinced of, and that is, that in spite of all known injurious insects, wheat can, under proper management, be grown to pay the farmer, and pay well, too. I think the onslaught of the insect tribe upon the wheat will result in good, by bringing about a much better system of farming, which otherwise would never have been attained.

Farming in Iowa.

Raising Wheat and Corn—Shelter for Stock, etc.

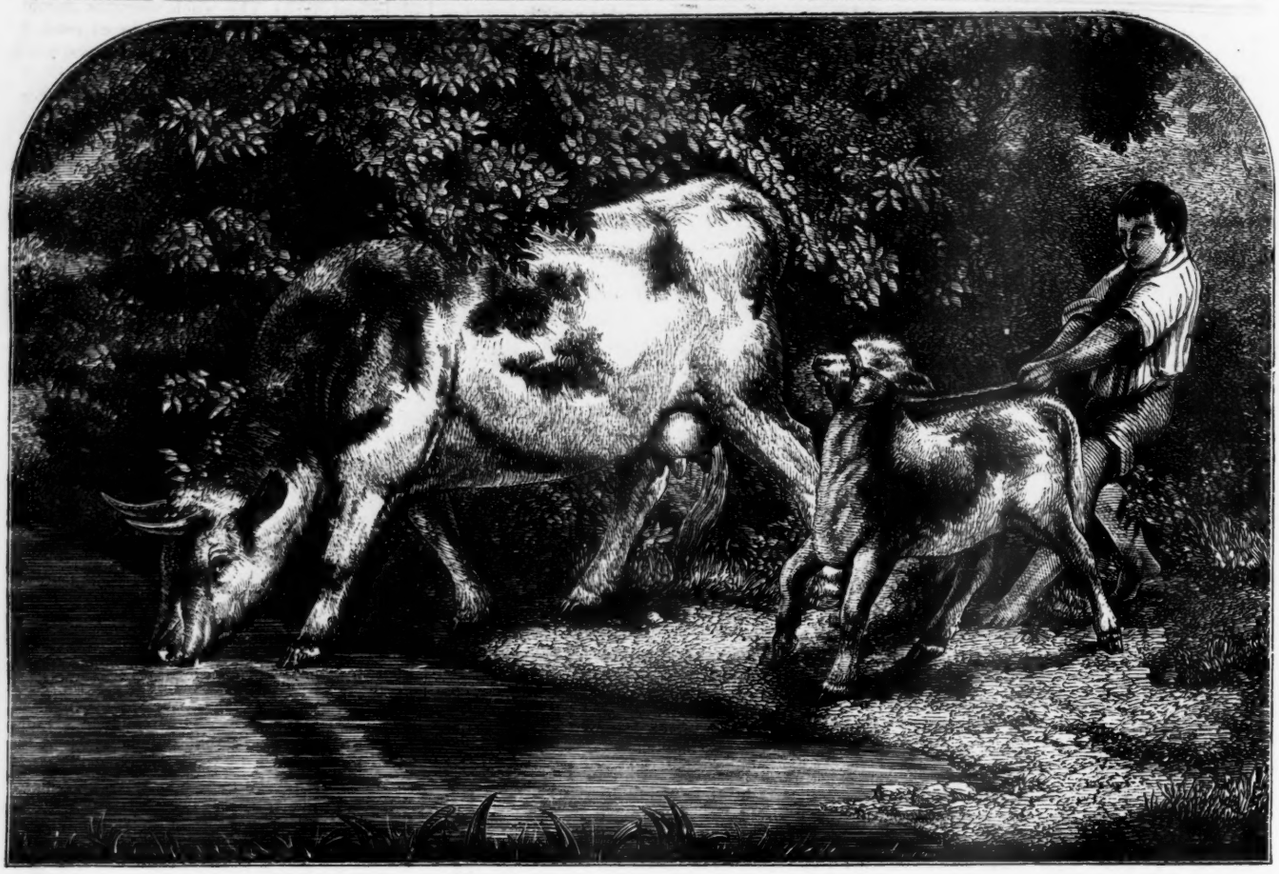
To the Editor of the American Agriculturist:

Our best wheat is raised on prairie sod, turned over the previous Summer. The first season of my farming in this section, I sowed 20 acres of Spring wheat on prairie sod, which had been turned over in June of the previous year, and corn dropped in every third furrow. It was harrowed well, at the time of sowing, without cross plowing. I never had a finer piece of wheat. The next Spring I cut the corn stalks from 12 acres, raked them up and burned them. On part of this I sowed wheat without plowing, and part was plowed before sowing. I had much the best wheat on the unplowed portion. We do not use any manure, the soil being sufficiently rich without it, but the time will probably come when manure will be valuable.

Most of our corn is planted on freshly turned prairie sod, dropping from two to four kernels in the crevice between every third furrow, and stamping it in with the heel. We sometimes raise as much as 50 bushels per acre in this way, and the ground is in good condition for Spring wheat.

Much of the stock in this country is still wintered without shelter of any kind. I had a stable for my horses, the first winter of my coming here, but nothing for any other stock. The winter was very severe and I resolved to have a shelter before another winter. Going to the timber, I cut and split strong oak stakes for posts, 8 feet long. These were set in a ditch 2 feet deep, 6 inches apart, and a plank spiked to each stake on top, the earth being filled in firmly about the bottom. Ten feet south of these I set another row of posts, 10 feet apart, and fastened cross timbers on the top of each one, running to the plank on the stakes. Rails were laid on these timbers, and when we thrashed our wheat in Autumn, the straw was used for a roof, topping off with prairie hay. Rude as this is, it forms a good shade in Summer and a shelter in Winter. I have seen unprotected cattle snowed in so that only their heads were visible.

Mahaska Co., Iowa. W. GILMOUR.



THE WATERING PLACE—FROM A PAINTING BY ROSA BONHEUR.
(Engraved for the American Agriculturist.)

Running water is always fashionable with the cows and all grazing animals. See old brindle slaking her thirst, and the calf about to plunge in after her, though he is innocent of all other beverages than his mother's milk, and reckless of the feeble persuasive behind him. The quadruped has manifestly two feet too many for the young biped tugging at the halter. The clear stream is more frequently visited and more enjoyed by the herd, than the most popular watering place by the lords of creation. It is much more essential to their health and thrift.

A very large portion of our Northern States is clearly indicated by nature as a grazing region. We have clear running streams, often fed by cool springs running through green pastures, and the herdsman has hardly to lift his hand to get an income from his fields. He may turn in his cattle in Spring, and take them out in Autumn or before, with a large addition to their weight ready for the butcher. But where fields are near the farm-house, it doubtless pays better to keep a dairy, and to look for the income in the shape of milk, butter, cheese and veal. In this case it is still more important that the water should be clear and pure. Water affects the taste of milk much sooner than the flesh of animals. As a rule, where there are swift running streams nothing more is to be desired for a watering place. There can be no stagnant water, and all impurities are immediately carried off. But it frequently happens in small pastures and upon level land, that there is no brook, while in adjoining fields there are springs upon elevated ground. In such cases it is not a very expensive job to bring in water with a lead pipe, or bored logs, delivering it in a wooden trough. This is much better than to dig a hole in the ground, and puddle the bottom with clay. In such drinking holes the water becomes stagnant, and is made foul with the droppings of cattle. If the trough is raised a little above the ground, they can only get their noses into it, and the flow of water, though small, is as sweet and pure as the largest stream. The next best artificial contrivance is the hydraulic ram, by which we may raise water to any desired hight, and supply reservoirs, of large or small capacity. But to work the ram we must have a running stream of considerable size. This is more frequently used to furnish yards and houses than pastures. If the choice is between a well and one of these puddled holes, by all means dig a well.

The Family Cow.

It is of the pet Alderney or Devon, kept by the villager, that we speak. The prime object is to get milk enough for the family, with a large dash of cream for the berries, and to be frozen in that cheap Summer luxury—ice cream. She is the sole occupant of the stable, daily carded and brushed by Patrick, the admired of the master, and half idolized by the group of children who watch the milking process at morning and evening with longing eyes, and learn that milk does not come from pumps. The owner was not brought up on the farm, does not know good milk, and wants the most of it that can be got out of a single animal at a fair price.

There is not much difficulty in getting a fair supply of milk, say twenty quarts or more daily from a single cow in the month of June, when the pasture is in its glory The quality may be improved somewhat by extra feed, even when the grass is most flush. The difficulty lies in meeting the wants of the family when the feed begins to fail in the latter part of Summer.

A good cow is indispensable—one that will give not less than fifteen quarts of milk daily in flush feed, and soon after calving. Careful attention, embracing gentle treatment, regular feeding and milking, carding, etc., is another requisite. But with all these things she must have extra feed when the grass diminishes. Succulent food, corn stalks, millet, mown grass fresh from the meadow, are all very desirable if they can be had. If we must fall back upon meal, there is nothing perhaps quite equal to cotton-seed meal to start the milk, at the same price. The cow will probably not like it at first, but if it be mixed with Indian meal, or if it be scattered upon the fresh-cut grass she will soon learn to eat it. Many milkmen use one or two quarts a day, with great advantage. The manure made from it is very valuable, and is said by some to be worth the first cost of the meal.

Linseed oil cake is another excellent feed for milch cows used for this purpose and for fattening, much more extensively in England than with us. This also adds greatly to the value of the manure heap. If these are not accessible, use Indian meal, which is within reach of all. All these varieties of meal will add as much or more to the quality, as to the quantity of the milk. If it be an object to make butter for the family, it will pay to use meal very freely. If, however, we wish to preserve the cow for breeding and raising her calves, she should not be made too fat. There is little danger, if she have full supplies of succulent food with the meal.

Staking up Trees.

We need not argue the importance of properly tying up young trees, especially such as are exposed to winds, or to be jostled by passing men or cattle. It is undesirable to bind a tree directly to a stake, because it rubs and chafes against it as it is swayed by the wind. A tight band is not good, because as the tree grows the trunk enlarges, and the band is drawn too tight. The plan shown in fig. 1, overcomes these difficulties entirely, and affords, besides, very good protection against animals. Two stakes are driven near the tree, and a band of canvass, oil-cloth, or leather is passed from each about the stem. The winds may sway it back and forth a little in every direction, unless the bands are too tight, and the trunk may grow a great deal, while the only effect produced will be that the stakes will be drawn a little nearer together. Fig. 2 illustrates another plan not so good for tall stemmed trees, but better for short ones perhaps—although equally applicable to any. A band of straw is passed about the trunk, the ends twisted together for a foot or so, and then bound about a stake set 12 to 14 inches off. The stake must be set in the direction toward the prevalent high winds, and the stiff straw twist prevents much motion, even toward the stake. "As the *twig* is bent, so the tree's inclined," is an old saw, but one which never needs re-setting, however much the trees may. The worst eye-sore a thrifty farmer can have on his farm is a lopped down tree.

Fig. 1.

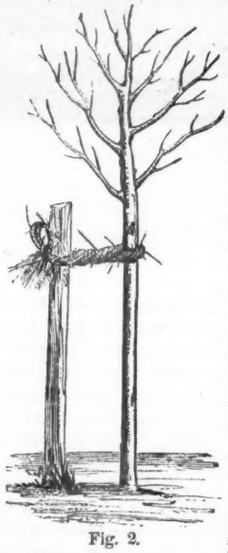


Fig. 2.

When and How to Bud.

Budding, we need hardly say, is the process of removing a bud from one variety of tree or plant, and inserting it in another. The object in budding is the same as in grafting, viz: to propagate a desirable sort of tree. The cion used in grafting is only a development of the bud used in budding. Fruit can generally be got by grafting sooner than by budding. But when a variety is very scarce, we can by budding get new limbs from single eyes; whereas, in grafting we have to use several eyes. The stone fruits exude so much gum in the Spring in northern climates, that it is hard to make grafts take. In all kinds of fruit, where grafting has failed or been neglected in the Spring, budding may be resorted to in the Summer.

The ordinary season for this work is from the first of July to the middle of August. But a more accurate criterion is the state of the buds and the bark. The shoot from which the buds are taken, must be of the current year's growth, and must be mature. This maturity will be shown by the forming of buds at the axils of the leaves, and of the terminal bud. The best buds for working will be found along the middle of the shoot. Many circumstances affect the condition of the buds and bark, and those sorts which come earliest into condition for budding must be first attended to, and of course others in succession. On some stocks and in some soils plums mature first, in others pears. Cherries may often be budded on Mahaleb stocks as late as Oct. 1st. The bark must be in a condition to lift easily from the wood, and there must be sap enough between the two to feed the young bud, and to help form a union with it. There must, also, be a certain degree of affinity between the bud and the stock. The pear, quince, apple, crab, and mountain ash, belonging to the same family, may be budded or grafted on each other. So with the apricot, plum, nectarine and peach. Currants and gooseberries may be worked on each other, and one sort of cherry on another. The practical operation of budding is simple. The method most commonly followed in this country is called *Shield Budding*, and is as follows: Having cut a cion containing the desired buds, (fig. 1,) choose a smooth, young stem, for the operation; and, if possible, let the insertion be made on the north side of it. With a sharp, thin-bladed knife, cut a slit through the bark about an inch to an inch and a half long, and with a cross-cut at the top, the whole shaped like the letter T, (fig. 3.) Then, from your cion, slice out a good bud with a little of the bark and wood attached, as in fig. 2. Now, with the other end of your budding knife, (if you use the common one), raise the bark of the stock, and slip the bud into the slit, and press it down to the bottom of the cut, leaving it so as to look like fig. 4. Be careful not to bruise the bud or the adjoining lips of the bark. Finish the work by tying down the bud and bark with bass-matting or soft woolen-yarn. Let the whole wound be well covered, so as to exclude air and moisture except from the point of the bud (fig. 5.) This whole operation should be done quickly. If the bud is long exposed, it dries, and is less likely to grow. A round minute is full long enough for the operation. A smart budder will insert and tie 600 to 1000 buds in a day, and if he has boys to tie after him, 2000 to 3000. It must be done expertly, too. If the bud has any torn and ragged edges, or if the wood under the slit is bruised with the knife, expect a failure. Where one has but a few buds to insert, he should choose a cloudy day, or the moist hours of morning and evening.

Fig. 1.

Fig. 2.

Fig. 3.

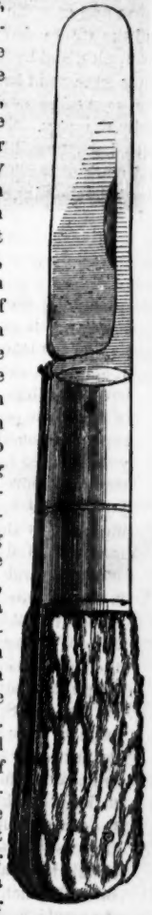
Fig. 4.

Fig. 5.

After-Treatment.—In a fortnight after the insertion, examine the buds to see whether they have "taken." This will be shown by their plumpness and freshness. The bandages should then be loosened a little, to allow room for expansion of stock and bud. Early the following Spring, cut off the stock with a sloping cut two or three inches above the bud. The bud will then push with much vigor.

The Best Budding Knife.

The common budding knife, having a long flat ivory handle for lifting the bark after the cut is made in the stock, is very inconvenient in rapid work, as it requires turning end for end at every operation. The knife, of which we give a full-size illustration, is far better, the blade answering the double purpose of cutting the slit, and lifting the bark, and the whole knife being no larger than can be conveniently grasped in the hand when open, the thumb resting upon the blade. The cutting part extends half around the end, and two-thirds of the length of the blade. That part of the end not sharp, is smooth and rounded, so that after the cut is made, this part may be slipped up under the bark on one side of the slit, and down on the other, just enough to start it. The cross-cut being made first, the other operations follow in very rapid succession. The buds having been cut from the stick, are held, half a dozen at a time, between the lips, and in a shorter time than we can describe it, may be inserted in the stocks. This knife is in common use in some of the nurseries about New-York. Our attention was first called to it by Mr. A. S. Fuller, of Brooklyn, who has been active in introducing it. We know of no place where it can be bought, but any cutler will insert such a blade in a common handle. The danger of bruising the young wood by the knife is very slight, for if the bark parts freely it is only necessary to start it by a slight lateral pressure, first on one side and then on the other, toward the top of the slit; the bark will be lifted enough to let the bud slip in, which, as it is slid down into its place, loosens the bark still more, if necessary. It is a good plan to polish the blunt edge of the blade used for lifting the bark.



For the American Agriculturist.

Hogs in the Apple Orchard.

Nobody sends such apples to market as my neighbor John Jacobs. He always has apples to sell and gets the highest price. Folks prefer fair, large apples; and such are always packed in Jacobs' barrels. You might search them with a candle and not find a knotty fruit or a worm hole. Such Rhode Island Greenings and Roxbury Russets I have never met with in the old States. They are as handsome as any thing in the virgin soils of the west.

I was going by Jacobs' orchard last Summer, and I had the curiosity to call and examine for myself. Says I, "Neighbor, what is there in your soil that makes such smooth, large apples? They are a third bigger than any thing I can get, and my trees look as well as yours."

"The secret is not *in* the soil," John replied, with a twinkle in his eye, "but on it. Do you see those grunters there? My pork brings me fifty cents a pound,—eight in flesh, and the balance in fruit. I began to pasture my orchard ten years ago with hogs, and since that time I have had no trouble with wormy fruit. Apples, as a general thing, don't fall from the tree unless something is the matter with them. The apple-worm and curculio lay their eggs in the fruit, and the apples drop early. The pigs devour the apples, and by September every unsound apple is gone and I have nothing but fair fruit left. The crop of insects for the next year is destroyed by the pigs. They root around under the trees, keep the soil loose, manure the land some, and work over what manure I spread. The apples help the pigs, and the pigs help the apples."

I saw John's secret at once, and have profited by it. I never had so few insects as this spring, and I give the pigs credit for it. In turning the orchard into a pasture put in *pigs*,—not landpikes with snouts like levers. You might lose trees as well as insects in that case. But well bred animals, with judicious snouts, will root in a subdued and christian-like manner. JONATHAN.

Perfect Trees.

These are almost as rare as perfect men. In the forest, all trees are crowded together, making only tall, naked trunks with heavy tops. On the outskirts of the woods they are one-sided. In the open fields the case is often different. Here we occasionally see a tree which has had a chance to grow from the first as its nature demanded. Perhaps it is an elm. Its stately trunk rises aloft, braced up as it were by buttresses; then it divides into columns, spreading upward and outward on every side, and at the extremities, bending over and hanging down its graceful swaying branches—a perfect canopy of verdure. So the maple, beech, linden, and ash, occasionally present specimens of perfect development. And how pleasing is the sight, in contrast with the tall, lank, one-sided trees so common!

Perfect evergreens are still more rare. And this, because their perfection requires a uniform development of branches from the top to the ground. This, of course, is never seen in the woods, nor yet in the open fields, because strolling cattle and the farmer's ax forbid the growth of limbs within six or eight feet of the ground. We would by no means criticise harshly those which we do see, incomplete as they are. The contrast, on the wooded hills, of pine and fir with the lighter foliage of other trees is pleasing at all seasons, and never more so than in Autumn. But in the sense we are now considering, they are quite defective. Here and there, in the show-grounds of a commercial nursery, or in the lawns of fine country places, we see what approaches perfection. The tree is a complete pyramid. Its lower branches are the longest, and they lie, for the most part, on the smooth grass. From these up to the very apex, the limbs shoot out on either side, according to their own laws, swaying about at their own sweet will, a luxuriant mass of verdure. No two species or varieties of conifers are precisely alike; so there is no danger of monotony, even if all are allowed to grow in this way.

A tree so developed, whether deciduous or evergreen, is a pleasant sight. It seems to be answering the end for which it was created. It seems really to enjoy itself; whereas, a one-sided, dismembered tree awakens a painful sympathy. You feel as if the poor thing were only half a tree, and were suffering from hard usage, and might about as well be hewn down and cast into the fire. Nearly all our village and city front yards, and our cemetery lots, furnish sad illustrations of our subject. Now we desire, in our humble way, to inspire a better taste. The farmer and land proprietor should take special pains to save the fine trees which they chance to possess. In selecting young trees for planting, care should be taken to choose only well-shaped, vigorous specimens. Nurserymen should not crowd their stock into close rows, thus spoiling the symmetry of their trees; and if they do, planters should refuse to buy them.

Summer Pruning.

Now is the time to attend to this work. Yet it can hardly be called "work," for it consists chiefly in pinching off the ends of growing shoots, and can be done mostly with thumb and finger. Mr. Barry aptly styles it "anticipated pruning." Surely, it is better to *prevent* the growing of a limb in a wrong place, than first to allow it to grow all summer, and then cut it off; for in the latter case, there is both a loss of time and a waste of the tree's forces. By preventing the growth in one direction, we send its strength into another channel. We accomplish results in one year, which it would otherwise have taken two years to effect.

Here is a pear tree, on which the limbs seem perversely inclined to push out unduly on one side. Let us head them off at once, and encourage the development of buds and wood on the other side. We wish to train our pear trees into pyramids, with one central, leading shoot; but often a side branch grows more lustily than the central. By pinching it back several times we can keep it in place.

Here is a grape-vine with several shoots pushing out strong from a single joint, while at another, equally important, there are none, or very weak ones. Pinch out all but one from that cluster of buds, and pinch them a second time, if they start again. Here, also, is a fruit-tree which makes an abundance, yea, a superabundance of wood growth, but yields no fruit. What can we do, that will tend to throw it into a fruiting state? Try root-pruning, or try summer-pruning. By some means check the over-growth of wood-buds; this compels the accumulation of sap in the remainder of the buds, and converts them into fruit-buds. English fruit-raisers practice what they call *spurring-in*, on their trained trees, and find that it makes them very productive. This is founded on the principle we now advocate. Doubtless this practice was suggested by observing the fact that when the ends of a limb get broken or bruised during summer, it often becomes a fruit bearing limb the following year.

There is another sort of pruning which may well be done in mid-summer, viz.: the shaping of all kinds of trees by the removal of limbs and twigs, large and small. Ornamental and fruit-trees are sometimes neglected in their early growth, and it becomes necessary to take hold of them with a vigorous hand, and bring them into good form. This is often done in Spring, but not wisely. The injury from bleeding, the poisoning of the adjacent bark and wood, and the slow healing of the wound are all against severe pruning in Spring. Prune in mid-summer, and these difficulties are obviated.

With facts and principles like these in his mind, we counsel the reader to try his hand at pruning. We think he will not go amiss.

Tim Bunker on Stealing Fruit and Flowers.

"Where did you get them lalock blossoms and roses?" asked Seth Twiggs, as he saw Kier Frink driving home his empty coal cart, with his horse profusely decorated. There was a large branch between his ears tucked under the bridle, and a dozen or more of Dea. Smith's large damask roses nodding from the hames.

"Shouldn't 'zactly like to tell. I'm 'fraid you'd all be arter 'em, they're so handsome."

"Well, I can tell, you scoundrel," said Seth, as he tucked his stub of a pipe into his pocket. "The roses came from Dea. Smith's, and the lalocks from my yard, and they haven't been picked more than five minutes. You miserable White-oaker and thief, don't you know any better than to steal such things? I'll have you sent to Har'ford, for theft, sure as I am a live man."

"I should like to see you do it. They are nothing but posies, and haven't any more vally than the smoke of yer pipe, Mister Twiggs. They hung over the road tu, and I should like to know if anybody haint a right to what grows in the road. I wanted to make the ole hoss look kinder gay, and bring home something nice to the old 'oman and the young ones. I didn't mean any harm."

"Harm? you miserable scape grace!" exclaimed Seth, shaking his fist; "I would rather you'd taken the calf out of my stable, or the pig out of my pen. Didn't wife plant that bush, and hasn't it been growing these four years, and now it is all broken and ruined, and the flowers hang on that wretched carcass of a coal horse. It's enuff to make a Christian swear to see lalocks and roses put to such a use. If there is any justice, you shall go to Har'ford jail."

There, you see, was the rub. Seth Twiggs got angry to very little purpose. There is no law that touches these vexatious trespasses upon flowers and fruit;—or if there is, we have no public sentiment to enforce it. The majority of the public, even in this Commonwealth, which I am bound to believe is head and shoulders above any other in this respect, have no taste for flowers and the finer kinds of fruit, and they look upon the people who cultivate these things as lawful prey. Their own flower gardens are limited to a patch of bouncing bet and tanzy in the back yard, with may-weed and catnip in front; and as they do not attach any particular value to these things, they think their amiable neighbors who cultivate roses and flowering shrubs prize these just as little. They would as soon break down a moss rose in a neighbor's yard, as a sweet briar growing by the road side.

They admire gay colors and sweet odors as most savages do, and that is the extent of their taste for flowers. They have no other measure of value than money, and as flowers in the country do not sell in market, they have no value. A pound of butter brings twenty cents, and is worth the money. A rose, though it affords pleasure to the eye, and to the smell, and gratifies our love of the beautiful, brings no price, and is therefore worth nothing.

It is pretty much so with fruits, though there is a little more conscience about stealing them, for fruit has a money value, though it be small. Apples are common even among these rude people; but they are of the ungrafted sorts, and hardly pay to carry to market where the better sorts are known. But they think their neighbors prize fine pears, grapes, and the smaller fruits as little as they do their seedling apples. It was only yesterday that I found a woman and her two children in my strawberry beds, helping themselves as leisurely as if they had been picking in a cow pasture. They had brought their baskets with them, and had got them nearly filled, when I had to lay down the law to them. They had at least a dollar's worth of my property, and were about to walk off with it.

Now I don't want to say a word agin' Hookertown, or damage the reputation of the place. I suppose it is a full average of Connecticut towns, and in some respects a good deal better. But to speak the plain truth, there is a good deal of stealing among us in this small way. And it can't be laid to the door of the pulpit neither. Mr. Spooner is faithful—preaches total depravity just as hard as if people did not illustrate that doctrine themselves—warns, entreats and expostulates with all long-suffering and patience. But you see the most of these people don't come to meeting, and the preaching that is going to reach them, I guess, will have to be in men's lives rather than in meeting houses.

The notion that nothing is of any value unless it will sell, seems to lie at the bottom of a good deal of this wickedness, and I think a word or two ought to be said upon it. Now this may be true with a great many people. They are so mean that they would skin flints to make money. But among decent christian people this can't be so. A man prizes a good many things that have no money value, far more than if he could turn them into gold. There is an old lap stone, such as shoemakers use, in my garret, that belonged to Sally's grandfather. He used to use it, and when she was a little child she remembers seeing the old man pound leather on it. Now I don't suppose the stone would sell for a red cent, but Sally says she would not part with it for the Kohinoor diamond, and all the crown jewels of Victoria. She is an honest woman, and I am bound to believe her. Anything that our affections enter into has a value that can not be measured by dollars and cents; and to rob us of these things is to do us a greater injury than to steal sheep and horses. I can't blame Seth Twiggs for raving about his lilac bush. His wife planted it and had a right to rejoice in it. It was rather hard to see the growth of years destroyed in a moment by an ignorant boor.

We cultivate flowers and learn to love them for their beauty, and for the pleasure they give our wives and children. They cost considerable time and money, and really give more pleasure than many things that cost ten times as much. They are associated with our leisure hours, and our domestic enjoyments. They seem to belong to the better side of our natures. We have a moss rose under our bed-room window that little Sally planted when she was a school girl. It hangs full of blossoms every year—not worth a cent. But I declare I had rather lose a half dozen of the best apple trees in my orchard than that worthless shrub.

It is very much so with our nice garden fruits. We raise them because we can't buy them in the country, and don't want to beg or steal them. I cultivate grapes and pears, and get a good deal interested in the vines and trees. I spend days in training them, and enjoy my power over them. They have a value to me above the market price, because they are the product of my skill. I have watched that bunch of grapes from its blossom to the purple bloom upon its ripened berries. I have watched those ruddy cheeked pears quite as anxiously, and anticipated the delight of setting them before my friends, when they pay me a visit. When the friends are gathered for the feast, it is a sore vexation and disappointment to find the fruit missing. We need more efficient laws to protect us against fruit and flower thieves, and above all a wider diffusion of a taste for these things, which will prove the best safeguard against their loss.

Hookertown, June 14th, 1862.

Yours to command,
TIMOTHY BUNKER, Esq.

Horticulture Artificial.

A young farmer writes us that he thinks nearly all the operations of horticulture artificial. They interrupt and prevent nature's laws and processes, and so induce disease, decay and death. He inveighs against pruning, grafting, budding, cutting off the tap-root of seedling trees, manuring, etc. Why not allow trees to grow naturally, and vines to clamber unrestrained over tree-tops and hedge-rows, and all to get along without any extra fertilization? There is a grain of truth in our young friend's theory, but hardly enough to keep it ballasted.

As to the tap-root; suppose we did not cut it off while small, in the nursery row, who could transplant the tree when it had grown a few years? The tap-root would be far down on the road to China, and the side-roots would be very small. As to budding and grafting, it is very true that crab-apples, choke-pears, and other wild fruit will answer to keep men from starving, but they will not quite satisfy the common wants of civilized people. As long as grafting will give us a plenty of Seckels and Northern Spys, very naturally we shall try to get them, "unnatural" as the process may be.

As to pruning and training, doubtless this is sometimes overdone, but perhaps it is as often wholly neglected. Some kinds of shade trees take a very straggling, lop-sided habit, and need a little improvement in their manners. Some fruit-trees make excessive wood-growth, and need a little cutting back, at the proper time, to induce fruitfulness. Of course, we could have no hedges, without the pruning-shears. The grape vine would yield us only small, second-rate fruit, if we allowed it to run wild on the trees; but it gives us more and better fruit, if confined to the trellis; and certainly it is easier to gather. A pasture or hay field is all well in its place, but a smooth lawn, well graded, mown and rolled, is a far finer sight for the neighborhood of the house. A gravelled walk, a bed of flowers, or even a cornfield, all are artificial.

And so we might go on; but our friend will not need further argument or illustration. Nearly all our agricultural and horticultural operations are artificial, but no reasonable man condemns them for that. Yes, even our moral virtues are artificial, in the sense of being "contrary to nature," but we prize them none the less for that. Rather, are we profoundly thankful to the Great Husbandman whose loving care has grafted them upon the wild olive tree.

Skilled Labor for the Garden.

There are some who, for various reasons, can not or will not work. They must depend chiefly on hired labor. And if they wanted only the plainest kind of work done, this could be easily got along with, for there are scores of laborers at every corner waiting to do this. But when it comes to such work as planting hedges and training them, pruning grape-vines and pear-trees, laying out flower-gardens and setting out shrubs and plants, how few laborers can be trusted! The good natured merchant directs Patrick, in the morning, to set out a few rows of dwarf-pears, and several grape-vines, and then goes to his place of business, flattering himself during the day that all is going on well. But on coming home, at evening, he discovers that the rows are as crooked as a rail-fence, and on examination finds the roots of his vines and trees jammed into little post-holes, then covered with soil, and spatted down very smoothly! "'Faith, sir, that's the way I ush't to do it when I was head-gar-r-dner to the Duke of Devonshire."—And so it goes, day after day bringing its several blunders, until the poor man is worried almost to distraction.

In all our villages and large towns, there are many families who are unable or disinclined to keep regular and permanent hired men, and yet have more or less gardening to do all through the Summer. They want their seeds sown in the Spring, then their hedges trimmed, or their grass-plot mowed, and their gravel walks cleaned. Widow Smith wants her lot in the cemetery put in order; Dr. Jones must have his grape-vines pruned and tied up. Nearly all of these persons know little about gardening, or have not the time to superintend it.

Plainly, then, we want not only laborers, but skilled laborers,—men with brains as well as muscle, and with both brains and muscles trained to do a specific kind of work. Were we better supplied with such workmen, our country homes would be managed with more ease, and with greater satisfaction to their owners. The professional or the business man could then go to his daily employment feeling that his garden and lawn will not be spoiled during his absence. Our grounds would rise to a higher point of excellence in their arrangement and keeping.

How best to multiply such a class of laborers, we hardly know. They must be trained somewhere, for they do not grow spontaneously. In the commercial nurseries, and large gardens near cities, and on the finest country-places of the land, there are many young men who, by a little pains on the part of their parents or overseers, might soon be trained into intelligent, skillful gardeners. If then, they should advertise in the leading agricultural and horticultural papers, they would surely find lucrative places. Would that many young laborers, now content to do only the commonest kinds of field work, would learn the art of gardening. It is an honorable, pleasant and profitable employment. The result even then would be that more lucrative places would offer so freely to this class, that the want we allude to would still go unsupplied. The only remedy after all, seems to be a diffusion of practical knowledge of gardening among all educated people, affording them enjoyment, exercise, and ability to direct laborers.

CHILDREN AND FLOWERS—*Engraved for the American Agriculturist.*

The love of flowers is to be cultivated, not extirpated, as is so often attempted by ignorant or heedless parents. It is not a proof of depravity that your child loves to ramble in the meadows and woods after lilies and wild roses, more than to hoe potatoes and corn. He does not deserve a thrashing, because he lingers by the roadside to pluck violets and dandelions, when he is sent to turn away the cows. He can not help admiring the dew-drops that hang like jewels on the flowering grass, and the morning songs of the birds. His soul is full of boyish rapture, and he is unconscious of the passing moments. He does not deserve ridicule, or a scolding, when he asks for a patch of ground where he may plant rose bushes and flowering shrubs, pinks and asters. It may be that the potato blossom, or rather bulb, has more charms for you than all wild flowers, or exotics in the garden. The children have not learned to measure by your standard. They will find pleasure in things that are good for nothing but to look at, and smell of. They are taken captive by the delicate coloring of the petals, and the aroma of the opening flowers; and who shall say that they are not as rational in their admiration as the man who measures value by the market price in gold? For what has God given us these instincts, if they are not to be gratified and developed, and have their appropriate place and exercise in forming the symmetrical character?

It is a good plan to give children portions of ground near the house to plant with flowers and flowering shrubs. It does not necessarily involve much expense or patronage of the nurseryman. With a little encouragement they will supply themselves from the meadows and woods in their own neighborhood. Let them transplant violets and butter cups, blood root and lilies, golden rod and cardinal flower, winter green and prince's pine. There are hundreds of pretty wild flowers that will flourish in the garden under their care, and make home attractive. What can be finer than the azaleas, the high and low laurel, and the rhododendron? They will bring to light many gems of the field and forest unknown to you, "flowers that waste their sweetness upon the desert air."

This love of the beautiful is to be educated, and if we will but give nature in them a fair chance, the education will not be half so expensive as that of the schools. Let them have occasional holidays, the boys and the girls together, in which they may go after flowers and berries in the woods and meadows, and by the mountain streams, and enjoy nature to the full. Picnics are in season now, and we have sometimes thought that they did old folks quite as much good as young ones. The perfection of a lesson in esthetics, is a dozen families or more, parents and children together, encamped in a wood on a Summer's day. It costs comparatively little in the way of preparation, but pays abundantly—the children can tell you in what.

Bouquets Gratis.

Every person who owns a good flower garden, is annually beset by visitors asking for bouquets. In some cases the flowers will be appreciated, but in many others, not. Many want them to pull to pieces, or to carry up and down the street, and finally to throw away. To such persons, it is hardly worth while to give choice flowers, if indeed any: it is money and labor, and rare beauty and fragrance thrown away. Many of these "beggars" have land enough at home, but are too lazy, or have too little real love for flowers to make gardens for themselves. They like very well to come and avail themselves of the fruit of your time and industry. Now, for these, and all other persons who do not appreciate the real worth of flowers, we would say, give them nothing, or else have at hand a lot of cheap, showy plants from which one can cut to *their* satisfaction. The marigolds, the annual larkspurs, monkshood, Drummond's phlox, candytuft, scabious, etc., will furnish a good assortment. Give them these, and it may awaken a love for something better.

But to others who heartily love flowers, and who will appreciate and preserve the bouquet given, as long as it can be kept, we would say, give choicer kinds. The finest roses, carnations, verbenas, geraniums, heliotropes, and others of sweet perfume and delicate beauty, should be freely bestowed. They will confer great pleasure, and will strengthen the ties of friendship.

Summer Fruits.

The season of fruit is one which gives employment to all who take any interest in their cultivation, in investigating new varieties, and extending one's acquaintance among those prized or cultivated by his neighbors. Every spare hour may thus be profitably spent. The strawberries are already past, and the lessons of the season have been well learned, we hope. Certainly, the value of the fruit to the public was never before so well demonstrated. The first week in July finds cherries in their prime over most of the country; and when any one who has been in the habit of esteeming the black and red mazzards, which are to be found almost universally over the country, as delicious, first enjoys a taste of the Black Tartarian, Black Eagle, or several of the Bigarreaus, it is almost as though an entirely new fruit had been

introduced to his notice. The more one knows of varieties of fruits, and the more one studies their peculiarities of flavor, the better is he able to appreciate their differences. When a man finds out that the grapes which he gathers on the mountain, and enjoys so well, are considered by those who claim to have a cultivated taste as next to worthless; and when he sees that with the finest of fragrant clusters he can not tempt them to taste a single one, no wonder he says: "Out upon such delicacy of taste—it is whim and nonsense." Still it is no nonsense. The taste, properly cultivated, affords us very refined enjoyment, and this too without the temptation to eat too much. He that eats any thing with pleasure, will be almost sure to gluttonize. He that enjoys only the very best fruit, has a higher enjoyment, is more benefitted, and seldom or never eats fruit to excess. These remarks apply equally to all kinds of fruit. At this season, study particularly currants and raspberries.

Double Yellow Butter-Cup.

This is a variety of the common butter-cup, (*Ranunculus acris*,) made double by cultivation. The cut gives a very good idea of the size and form of the flower—which is very perfect, and retains the brilliant color and gloss of the wild variety. It is perfectly hardy, growing in any common garden soil, and is propagated by dividing the roots, either early in the Spring, or so soon as it is done flowering in Summer. It is well worthy a place in the garden.

Endives, Culture, etc.

Green salads are, at all seasons of the year, very refreshing and healthful articles of food. At the very head stands lettuce, particularly those kinds which form heads readily: but few or no kinds will bear the heat of Summer. They will not head, acquire a disagreeable bitter taste, and are tough. The delicious salad named above comes in to supply the place of lettuce during the heats of August, and remains in perfection during the Autumn and Winter. It may be sowed at any time during the Summer, up to the first week in August, needing good deep rich garden soil, frequently stirred. There are several kinds. We prefer the broad-leafed variety. Sow in drills, and transplant 12 to 14 inches apart. As the plants grow they may be watered with liquid manure, and if the ground is well and frequently hoed, they will grow rapidly, spreading out a mass of leaves, lying flat on the ground, 12 to 14 inches in diameter.

If wanted for summer use, when they have attained the size of a dining-plate, the leaves are gathered together when dry, and tied with a piece of bass-matting or string. After a heavy rain, should one occur by which the inside of the plants are wet, they must be unbound and opened to dry in the middle of the day, and bound up again before the effect of the bleaching is lost. The blanched portions form a very pleasant summer and autumn salad. The chief excellence of the endive is seen in Winter.

After frosts have cut down tender things in the garden, we pull up the endives, remove any decayed leaves, and set them out in the sand-beds in the cellar, closely packed together. Very soon they begin to grow, and the new growth is beautifully blanched, while the tenderer portion of the older growth bleaches also. The largest and most vigorous plants are earliest fit for the table, and others follow in succession. We heartily commend the culture of this salad, which is so great a favorite upon European tables. There is always a ready market for the bleached plants among our German population.

Mushroom Culture.

Mushrooms are greatly esteemed on account of their peculiar and delicious flavor. They may be stewed, fried in fat, or made into catsup. In some countries, Russia and Poland among the number, there are said to be above thirty kinds in use. They are there gathered at different stages of growth, and used raw, boiled, stewed, roasted, and even dried for winter use. Great care must be exercised in selecting mushrooms for eating, as there are poisonous kinds. Three ways are recommended by which to determine whether they are good: 1st, by the color of the gills, that of the good kinds being, when young, of a fine pink, or flesh color, changing, however, to that of the questionable kinds—a chocolate color—at more mature growth; 2d, by the smell, the good kinds emitting an agreeable odor, while that of the bad is nauseous and disagreeable; and 3d, by sprinkling salt upon the inner or spongy part, unwholesome kinds turning yellow, and edible kinds black. Bad kinds are found mostly in forests; edible ones in open pastures, most frequently in old horse-pastures, which sometimes, in damp, warm seasons, yield large crops.

Mushrooms may be grown at any season of the year, by those who have a suitable bed. This may be made in any dry cellar, (or under a shed,) the temperature of which can be kept at from 50° to 60°. Extremes of temperature must be avoided. The temperature of the bed should be from 70° to 75°. A bin or bottomless box about 20 inches deep is suitable for a bed, and one four feet wide by eight feet long, if properly managed, will yield a supply for a good-sized family. On the bottom put a thin and slightly oval layer of ashes and gravel, or pieces of bricks, to avoid dampness. Next put in a six-inch layer of unfermented horse-droppings from grain and hay-fed horses, (not grass-fed), the dryer the better, with short straw intermixed. When this, being exposed to the air but not to rains or dampness, has become quite dry, cover with two inches of dry earth—sandy, if possible; into the surface of this introduce small pieces of spawn in rows six inches apart. Then repeat the layer of horse-droppings, and short straw, and of earth, with spawn introduced as before. Cover the whole with two or three inches of fresh, warm horse-droppings, and occasionally sprinkle with blood-warm water, to induce fermentation, the top layer of fresh manure to be removed as soon as fermentation has caused the spawn to begin to spread. In five or six weeks mushrooms may be expected. The usual size is from 1½ to 3 inches in diameter, but those over 4 feet in circumference, and weighing 12 to 14 pounds have been produced.

Mushroom spawn is usually to be had in seed stores, and also may be found, of uncertain qualities, however, in dry lumps of horse dung, in old pastures, hot-beds, and manure heaps. It has the appearance of dry, white threads. The following method of manufacturing sale spawn is recommended by Bridgeman: "A quantity of fresh horse droppings mixed with short litter, should be collected; add to this one-third of cow dung, and a small portion of good earth, to cement it together; mash the whole into a thin compost, like grafting clay; then form it in the shape of bricks; which being done, set them on edge, and frequently turn them until half dry; then with a dibble make one or two holes in each brick, and insert in each hole a piece of spawn the size of an egg; the bricks should then be laid where they can dry gradually. When dry, lay dry horse-dung on a level floor, six or eight inches thick; on this, pile the bricks, the spawn side uppermost. When the pile is snugly formed, cover it with a small portion of fresh warm horse-dung, sufficient in quantity to produce a gentle glow through the whole. When the spawn has spread itself through every part of the bricks, the process is ended, and they may be laid up in any dry place for use. Mushroom spawn, made according to this recipe, will preserve its vegetating powers for many years, if well dried before it is laid up; if moist, it will grow, and soon exhaust itself."

Mushrooms of good quality find a ready sale in New-York, and doubtless in other cities, if the discretion of the gatherers or raisers may be depended upon; and they would soon become a favorite article of food if they were more commonly cultivated for the market.

Raising Cauliflowers.

Not the least among flowers is the savory cauliflower. So every epicure will say. So every one who enjoys good food will say, and so say we. To grow this vegetable well it is important to give it some care. Start the seedlings, as we do common cabbages, in a warm rich border. For winter and fall use, the plants need not be set out before the 10th of July. Prick them out once or twice in the border, before giving them their final place in the open ground. This will make them strong and stocky plants. In choosing a spot for transplanting them, let it not be in the shade of trees or fences. The soil should be deep and rich. If not so naturally, break it up with a long spade, and put a shovel full of manure at the bottom of each hole, covering the same with two or three inches of fine earth. With a garden trowel, lift the plants and set them out in rows three feet apart, and two feet and-a-half in the row. If the weather be dry, shade them for a few days. Keep the ground loose by hoeing, but do not earth up the plants much, as this often induces rot.

Unless the ground is naturally moist, it will be well to cover it in mid-summer with strawy manure, or with clean straw. Once a week, pour over this mulch the refuse water of the kitchen and chamber. In September and October you will enjoy the results of these labors.

Garden Culture of Celery.

This old British salad is a great favorite with epicures, but it is less generally cultivated than it deserves. Probably it can not be shown to contain much real nourishment for man or beast, yet it makes a fine relish. The stalks, when blanched, may not only be used raw, or for salad, but may be stewed or used for seasoning soups. In its wild state, it grows in marshy ground and by the side of ditches, where it is known as *smallage*. In that state its taste is rank and coarse, but when cultivated and bleached, it becomes delicate, sweet and crisp.

There are many kinds for sale at the seed-stores, advertised as Mammoth, Giant, Excel-

sior, etc., but they may all be reduced to two classes, the *White Solid* and the *Red Solid*. The only difference between these is in their color, and the ability of the red to stand frost a little better than the white, and its being more uniformly solid, while the white is more delicate in flavor. The difference in size is the result of cultivation entirely.

To secure good plants, the seed is best sown in a cold frame, and when an inch or two high, pricked out into the open ground, in a warm, sheltered border, and it is well after ten days or two weeks to move them again, leaving the plants three or four inches apart. These several transplantings make them stocky and harden them off for final setting in the trenches in June or July, or even as late as the first of August.

For planting, choose a rich and level piece of ground, dig the trenches eight inches or a foot deep, a foot wide and three feet apart. Remember to throw the top-soil on one side of each trench by itself, and the poorer soil on the other. The trenches should, if convenient, run north and south, though this is not essential. Give the ground in the bottom of each trench a thorough enriching with old manure; leaf-mold mixed with the remains of an old hot-bed is the very best thing. Having watered the plants thoroughly the evening before, they will be in good condition to take up. Use a garden-trowel, taking up as much dirt as possible with each root. Some recommend clipping the loose leaves and the extremities of the roots on re-setting. Let the plants stand in the trenches four or five inches apart. If the weather is hot and dry, water the ground well, and for a while lay a few loose boards over the trenches by day.

The after treatment is simple, yet it is of the utmost importance that it be rightly done. Keep the ground well stirred with the hoe, that the plants may grow rapidly; if the weather is dry, watering must be resorted to. Do not be in haste to "earth up." About the middle of August or first of September, is soon enough. In doing it, hold the leaves of each plant together with the left hand, and with the right draw the soil around the stalks several inches high, using the best soil thrown out of the trench, rejecting the poor. But use the greatest caution not to draw the dirt into the center of the stems, as this will cause them to rot or become very rusty; and do not *press* the soil too much towards the stalks, as this will check their growth, but it must be tightly packed down in order to turn the rain. Repeat this earthing up once a fortnight, using the same care in doing it.

Before hard frosts set in, in the Fall, the plants should be lifted, taken into the cellar, and set out with little earth adhering to the roots, in nearly dry sand. They will grow and blanch in the cellar, and may be used for many months.

Movable Frame Bee-Hives.

It is well known to all bee-keepers that bees ordinarily build their combs in more or less uniform perpendicular cards or curtains, about 1½ inches from center to center. If guides, made of thin strips of comb regularly fastened to the top of any chamber of the hive, are provided, these will be followed, and the combs made with similar regularity. Where any rather rough edges are similarly presented, the result is the same. The cards of comb are attached to them, and if the edges are straight and not too far apart there will seldom be any considerable irregularity. In all movable frame hives, the aim is to present such edges at proper distances, so that the bees may economize all the room in the hive, and that we may remove any one or all of the frames with the comb attached at pleasure and without disturbing the other combs. This, Mr. Langstroth accomplishes by using oblong frames, like slate frames, the upper edges of which, when in position, are so much longer than the frames that the frames may be suspended by them in a box. Others use frames of different shapes, some arranged to draw out sideways, which is attended with many inconveniences; others are triangular to accommodate slanting floors which facilitate efforts of the bees to keep the hives clean; and another plan is to have the frames hinged, so as to be swung apart when the hive is opened, like leaves of a book held perpendicularly. For these and other forms and combinations with them, of various supposed or real advantages, letters patent of the United States have been granted. But the fundamental idea of movable frames, which the inventions of Mr. Langstroth first rendered practically useful in this country, was early in the present century put in practice by Huber, a Genoese apiarian, and subsequently by others both in Germany and Great Britain. A person of ordinary ingenuity, living where the movable frame hives can not be bought, can easily adapt frames to a square box, taking care chiefly to present a rough, narrow edge (as left by the saw) for the comb to be attached to, and not allow the frames to come anywhere so close to the box that the bees will cement them to it, and taking care also not to give so much space that they will build a line of cells between the frame and the sides.

Keeping Swans.

Who that has seen the swans in the Central Park, in this City, or on the little lake in Mount Auburn Cemetery, Boston, does not wish to adorn his own pond or stream with a few of these graceful water-fowl? We are glad to learn that they are being introduced into the grounds of many private residences throughout the country. These birds are often called "tame swans," "domestic swans," and so on; but, let it be remembered, they are not so very tame, after all; they never become so quiet and home-loving as the goose or barn-fowl. They are constitutionally wild and capricious, and need watchful care; though apparently very tame and familiar toward those who feed them, or from whom they expect no harm.

At the outset, they must have good water-privileges. A lake, or a pond of good fresh water, will answer. Take no pains to clean out the weeds and rushes which chance to grow near the margin of the water, for it is among these that swans delight to ramble and feed. They love corn, oats, barley, etc., but their natural food is seeds and grass, insects, worms, larvæ, and mollusks. When grain is fed, scatter it just on the shore and in shallow water near the shore. They love the waste vegetables of the garden, and all the more for being half-decayed. Watch their eating habits, and you will observe that they prefer to eat by "suction," rather than by picking up their food like a hen. They love to dive their heads under water, and suck down the soft, half-rotted vegetation on the sides and bottom of the stream. Thus they act as scavengers, purifying the stagnant waters that would otherwise become foul and unwholesome. In Holland, they are considered very beneficial in this respect. If they will swallow down miasms and fevers for us, and harmlessly to themselves, we ought to thank them.

In buying a pair of swans, it is best to get young birds, for the old are hard to domesticate in a new place. But in purchasing cygnets, be sure and get birds of opposite sexes, a thing not so easy to determine by their plumage. Two males will quarrel, and two female-birds, though they live pleasantly together and lay eggs, of course will raise no family between them. Get husband and wife, and all will go off well. To ascertain the sex, put several cygnets into water, and those which swim deepest, (i. e. sink deepest,) will prove to be females. After fixing upon your pair, have them securely pinioned. And then, to prevent their flying away from your grounds some fine day, have the last joint of each wing taken off. Let this be done at the place of purchasing the birds, so that they may have no unpleasant associations with their new home. This can be done so as to disfigure the bird but very little. When they reach their new quarters, treat them kindly, keep them quiet, and feed them regularly.

The male bird is capable of increasing his kind when two years old; the female not until three years of age. When they show a disposition to breed, they should be supplied with a bushel or two of coarse litter, such as straw, rushes, stalks, and a few sticks. They will work this material up without any instruction. They lay from six to ten eggs before setting. When the female commences her maternal labors, nobody should approach her nest. The male bird will sail very proudly and defiantly up and down before the nest, and wo to the youngster who dares to approach the sacred bed!

A fat young swan makes a capital dish. From October to Christmas, these birds are in prime order for the table. After that period, they are not as good—the turkey excels them. Well fattened, they weigh, in their feathers, from 25 to 30 pounds. And now, hoping that we have got our readers into a good appetite, we leave the subject, intending to resume it again in due time.

Luncheon.

The habit of eating five meals a day during Summer, and especially in haying time, came over with our fathers from England. The custom perhaps originated in certain peculiarities of their climate. The summer days are longer than with us, and the fair days for gathering the hay and grain harvests are fewer. It was necessary for the laboring force of the farm to make the most of these fair days, and to work while the light lasted, sixteen hours or more. More food was necessary to sustain the body under such prolonged exertion.

Our work is severer in Summer than at other seasons—more so formerly than now, when the horse-reapers, and mowers, and rakes, have lifted the farmer's heaviest burdens, and put the hay and grain harvest completely within his power. Whatever apology there may have been for working fifteen hours a day, in the last generation, there is none in this. We do not believe anything is gained by more than ten hours of severe labor in the field daily. This, with the chores at night and morning, will be as much labor as the body ought to sustain, taking the season through. In a single day, a man may do more in fifteen hours than in ten. In a month we think the man laboring ten hours a day only, will accomplish the more. The overtaxed system must have rest, or break down. If it can not get it in the bed at night, it will take it in the field, inadvertently, if not willingly. There will be lagging, want of spirit, and slighted

tasks, showing that the energies are not in the work. Luncheon is for long days and over-work. It is based upon a wrong philosophy of labor.

With a better arrangement of the meals, and the hours of labor, luncheon may be dispensed with to the great relief of the women of the household, and to the advantage of employer, and laborers. The breakfast should be out of the way and the men be in the field by seven. They can work five hours comfortably, when six and a half would be an injurious strain upon the strength. They come to the noon meal at twelve, with a good appetite, and at one, are ready to resume work again. They work vigorously until six, when if they knew they were not to be dismissed until sunset, or dark, they would hold back. We have followed the ten-hour system with our laborers upon the farm for several years, dispensing with luncheon, and have no doubt it is good economy With good calculation, it is seldom necessary to overstep these bounds. If a storm threatens, and more work is necessary to get hay into cock, or into the barn, men are always ready and willing.

Suggestions for Health-Preservation.

The season is now upon us when, owing to the summer heats and atmospheric influences, fevers prostrate, and diarrhœas exhaust multitudes who, during less debilitating seasons of the year, are comparatively exempt from disease. Yet this class of complaints may generally be avoided. The readers of the *Agriculturist* should be well enough acquainted with the subject of Health-Preservation to know that it does not depend upon medicines. These would rarely be necessary, if we were as anxious to take care of our own health as a thrifty farmer is to take care of that of his sheep and hogs. Men are apt to employ less common sense in their own behalf, in this regard, than in behalf of their swine! They will carefully study and profit by information relative to the ailments of their herd, and how to avoid them, while the preservation of their own health, and that of their children, is a subject rarely thought of. Worse still, sparing neither pains nor expense to procure the most wholesome food for their animals, they debilitate their own stomachs with that which they *know* to be unwholesome. The general rules and requirements of health are simple and easily learned. In fact, one has but to watch the sensations of his olfactories, skin, and stomach, and *heed* them, to keep clear of all danger from ordinary diseases. The sense of smell warns him against inhaling impure air; the skin, by dryness, feverishness, or irritation, indicates a want of that frequent bathing, which is so essential to health; and the stomach calls for food when needed, repels it when enough has been eaten, and in a natural state, betokens generally that which is unwholesome. A little extra pains to notice these indications will greatly sharpen the perceptions.

It may be set down as a general rule that ordinary diseases can not obtain a foothold where only pure air is inhaled, the skin is clean and healthy, and the stomach kept in good condition. The latter involves the most difficulty, owing to the depraved habits of diet in "civilized" society. But a few rules, well lived up to, will rarely fail, viz: Be regular as to time of eating; do not exercise violently either immediately before or immediately after meals; and let the last meal of the day be light and easy of digestion, so that sleep may be undisturbed and refreshing. In the morning, any billious disturbance of the stomach is known by the bitter taste in the mouth. *Heed this warning*, by restricting diet to plain bread, vegetables, and ripe fruits; and if it increases, go without supper, and take a thorough warm water bath—rinsing off in cool water—just before retiring to bed. As a general dietetic rule for Summer, persons in any degree delicate should use plenty of ripe, raw, and cooked fruits at meals, and but little, if any, fat meats. Let all dietetic changes be gradual; and for the most part use food that requires chewing, *and chew it well*, in order to give the stomach the full benefit of the assistance of the saliva in digestion.

Avoid sudden changes in quantity of clothing, cooling off suddenly when heated and perspiring, and all sudden changes. In keeping the skin clean, do not neglect that most important part, the scalp.

For the American Agriculturist.

Taste in Dress.

Tight sleeves are becoming fashionable now on our prairies, where they are so much needed. Prairie winds are cold and searching, and loose sleeves in Winter, at least, are next to no sleeves at all. Flowing sleeves have been so long in fashion, however, that people are tardy in giving them up, though for housekeepers they are the most slovenly sleeves ever invented, not to speak of the shivering look they give in church or street, with short gloves, and bare arms as red as a lobster. Fur cuffs on bare arms is but one remove, but add white undersleeves, whether of muslin, or zephyr, and the change to the wearer and looker on is very great.

It is said that when a French lady, from the country, comes into Paris to refurnish her wardrobe, she puts herself and purse into the hands of a female *modiste*, who measures her, takes her stature, complexion, etc., into consideration, and to whom, at the end of a week, she returns for a complete suit of clothes. The French women are not pretty, as a general thing, but their charming taste in dress makes them queens of fashion the world over. And while some women are born with an innate perception of the beautiful, there are others to whom the harmony of colors is a dead letter. The other day I was shopping in Lanark, when I met a woman who came recently from the East; she had on a splendid *moire antique* dress, with a trail to it, which looked anything but at home in the muddy streets of our new prairie town. I glanced upward at her bonnet, it was a summer straw, with green trimming outside, pink roses inside, and *yellow* strings.

One of the prettiest girls I ever saw was a young lady with curly, red hair; some might have thought that the color of her hair detracted from her beauty, but I didn't; her complexion was such a mixture of the rose and lily, that her exquisitely dressed hair seemed a fitting accompaniment. She never wore distinct green, red, or blue dresses, as I have seen so many of her complexion wear. "What a blaze she makes," she said to me one day as we met a red-haired girl with a maroon bonnet and cherry-colored strings. There was truth in the remark.

Dark complexions seldom look well in distinct black or white bonnets; if the bonnet is black, crimson flowers or ribbon with a white rouche is a great improvement, and pink trimming always relieves a brunette complexion in a white bonnet.

Carroll Co., Ill. MRS. M. J. STEPHENSON.

Fruit in Bottles.

On account of their abundance and cheapness, we shall put up a large quantity of berries and other fruit this season. With most of them, the plan given in the June *Agriculturist*, page 181, will be followed, though we shall try a few of each sort simply bottled in water raised to the boiling point. Some of the pickle and preserve dealers keep them thus with entire success. The directions given are to procure the regular pickle bottles, with long necks, and without shoulders, and to use long, soft, close corks, that will admit no air. The bottles are filled with the fruit, and water poured in to within half an inch of the top. The corks, softened in hot water, are forced with a mallet at least an inch into the necks of the bottles. Tie the corks securely with two strings crossing each other. Then set the bottles upright in a wash-boiler of cold water reaching nearly to the corks, and heating the water, keep it boiling say five minutes, when they may be taken out and set away. We know of raspberries and other fruit having kept thus for two years.

Pleasant and Wholesome Summer Drink.

The juice of currants, put up in air-tight bottles, affords a foundation for a delicious and wholesome beverage. Put enough water with ripe currants to prevent their burning; heat in a preserve-kettle nearly to boiling; transfer to a bag suitable for straining and press out the juice; add half a pound of clean sugar to each pound of juice and boil, skim, and put up as recommended for putting up the fruit. The juice alone will keep as well, if not better than the fruit, and, mixed with from one to two parts water, according to the taste, it makes a most refreshing drink. Being entirely free from alcoholic or intoxicating properties, there is no danger of the creation of an appetite for strong drink resulting from its use. It might profitably be kept for sale by druggists at all seasons of the year, and we presume that putting it up for that purpose may be made a source of income worthy of the consideration of currant-raisers who now make wine. Those who usually have more of this abundant fruit than they know what to do with, may find it for their interest to take note of this suggestion.

Unleavened Bread.

D. M. Adams of Worcester Co., Mass., writes to the *Agriculturist* endorsing E. W. Knight's remarks on bread-making, and adds: "I am a dyspeptic, and must say that I have derived more benefit from the change from leavened to unleavened bread than from any other dietetic change that I have made. If our good Editor can not endorse it, I can to the fullest extent, and with his permission should like to give my way. I stir as much Graham meal as I wish to into water; if I want soft spongy bread to eat warm, I stir it quite thin, if to eat cold, I prefer it stirred pretty thick; it makes a much lighter, sweeter loaf than can be got in a more artificial way. [The mixture of flour and water, thus prepared, is, probably, then simply baked.—ED.]

Various Recipes.

Flour Pudding.—The following is the recipe of a delicious, as well as a cheap pudding: 1 cupful of white sugar, 3 tablespoonfuls of melted butter, 1 egg, 1 teaspoonful of cream of tartar, ½ teaspoonful of soda dissolved in 1 cup of sweet milk, and 1 pint of flour. Flavor to the taste, and bake in a tin pan. To be eaten with hard or soft sauce. IDA J. RAYNOR.

Rhubarb Wine.—Take 4 lbs. of rhubarb to 1 gallon of water, squeeze it, put it into a tub, and pour the water on it; let it steep 3 days, then strain off the liquid; put 3½ lbs. of sugar to every gallon, and put it into a barrel, stir it every day for a fortnight, then add a few raisins and a small quantity of isinglass, then bung it up for three months. Finally bottle it, and in 5 or 6 weeks it will be ready for use.

Elderberry Wine.—The following recipe, from an unknown source, has been tried by an acquaintance, and proved good: 1 quart juice, 3 quarts water, 4 lbs. sugar, and 1 tablespoonful yeast to the gallon. Put it in a cask, in a cool situation, keeping the cask full. It soon ferments and discharges froth from the bunghole. When the fermentation is over, bung up or bottle. Boiling juice injures it.

Vegetable Soup.—Take a good sized chicken, or an equivalent piece of beef or mutton, cut it up and put it in water, rather more than enough to cover it, adding a tablespoonful of salt; boil until nearly tender, skim off the fat; add butter, salt, and pepper, and more water if necessary; then slice into the soup *ten* large potatoes, one small Swedish turnip, one carrot, two parsneps, (an onion and a few stalks of celery,) with two or three spoonfuls of rice; boil half an hour, or until tender. Before serving, add a spoonful or two of wheat flour stirred up with cold water. One or two spoonfuls of sweet cream greatly improves the flavor.

THE SOLDIER'S RETURN.

(Prepared and engraved expressly for the American Agriculturist.)

The Editor with his Young Readers.

Scenes like this in the picture, are now common in all parts of the loyal States. You see the soldier has been wounded in the leg, and is now so far recovered that he can walk with his crutch. He is a sergeant in his regiment, and has got home to his family, where he is explaining to his parents, and to his wife and children, the scenes of the battle. The newspaper map is spread out upon the table, and with the stem of his pipe, he is showing "how fields were won." You see by the picture of General Scott upon the wall, and the cannon that little Robie is drawing upon the floor, that military education has been going on in the family during the father's absence. There stands a future soldier of the Republic. How he drinks in every word of his father's story, and enters into his sympathies! Will he not always love the dear old flag under which his father fought, and his heart thrill to the music of the Star Spangled Banner? What seeds of patriotism and hatred to treason are now being sown in young hearts all over the land! The wife is well pleased to see the head of the household home again, though he comes bearing the wounds of battle—scars that he must carry with him to his grave. She is proud to have borne a part in the sacrifices, by which the land of their fathers, or of their adoption, has been rescued from its perils.

One of the good things to come out of this war is the cementing of the nation into one homogeneous people. The miserable jealousy towards foreigners will be cured. Almost every European nationality is represented in our armies, and their blood has been poured out as freely as that of the older citizens of the Republic. All have stood together in the presence of a common danger, and have been made children of a common country, by a baptism of blood. The seal can never be effaced, and will never be forgotten.

Alas! for the homes to whom the soldier will never return. For them there is no tale of triumph from the lips they love, but loneliness and grief, for which there is no solace but in God, and in exalted patriotism.

Something About Chemistry—III.

(Continued from page 184.)

Our young readers will remember that we told them, on page 183, about *Water*, that it was composed of two gaseous or air-like elements, oxygen and hydrogen; about the *Air*, which is a mixture of oxygen and nitrogen, chiefly; about the gas called *Carbonic acid*, which is formed when charcoal, or any thing which contains carbon, is burned in the air or in oxygen, and a little about Ammonia, composed of nitrogen and hydrogen. Now these substances, except the air, are compound bodies, the elements of which are united by *chemical affinity*. Affinity means the power which unites elements or compound bodies, so that two unlike substances form a new one unlike themselves, and in doing so, always combine in the same proportions. Thus when oxygen and hydrogen combine to form water, 8 parts (that may be 8 ounces, or 8 pounds, or any weight,) of oxygen unite with 1 part of hydrogen. When oxygen and carbon unite to form carbonic acid, 8 parts of oxygen unite with 12 parts of carbon, and so on. This is very different from mixing things together. We may mix salt and mustard, and oil and vinegar, and they make a salad dressing; but we know that each of the ingredients is still unchanged, for we taste each one in the mixture. In mixtures there may be more or less of either of the things mixed; but when things *unite* chemically, it requires a certain definite quantity of each. We told you that oxygen combined with iron, and formed iron rust, or oxide of iron Now in iron rust we perceive no oxygen, neither do we perceive any iron. 18 parts of iron united with 8 parts of oxygen; both the iron and the oxygen have disappeared, and we have red iron-rust, a new substance in all its relations. So it is with all chemical combinations, and this is the difference between mixed substances and compound bodies, whether they be solid, liquid, or gaseous.

The air, we have said, is composed of about one-fifth oxygen, and four-fifths nitrogen. This is a mixture, and the nitrogen softens the oxygen just as oil softens the vinegar and mustard in the salad

26—*Two to each Measure.* **I WILL BE GOOD, DEAR MOTHER.***

1. "I will be good, dear moth - er," I heard a sweet child say; "I will be good—now watch me— I will be good all day." She lift - ed up her bright young eyes With a soft and pleas - ing smile, Then a moth-er's kiss was on her lip, So pure and free from guile. "I will be good, I will be good, I will be good, I will be good to-day."

2. And when night came, that lit - tle one, In kneel - ing down to pray, Said, in a soft and whisp'ring tone, "Have I been good to - day?" O ma - ny, ma - ny bit - ter tears 'Twould save us did we say, Like that dear child, with earnest heart, "I will be good to - day." "I will be good, I will be good, I will be good, I will be good to-day."

3. Je - sus can help us to be good— To Him we'll hum - bly pray; His grace a - lone can make us good, And keep us good all day. He'll help us hate all e - vil thoughts, All sin - ful words and ways; And in his ser- vice take de light Thro' all our earth-ly days. "I will be good, I will be good, I will be good, I will be good to-day."

CHORUS.

* We give our young readers again, by permission of Wm. B. Bradbury, one of the beautiful tunes from his book called the "Golden Chain." Both the sentiment and the music are sweet and elevating.

dressing. When oxygen and nitrogen really *unite*, something very different from the air is formed. They unite in different but uniform quantities, and form several different substances, one of which is nitric acid, or *aqua fortis*, a liquid which will dissolve iron or copper almost as easily as water will sugar. We might *mix* oxygen and nitrogen in precisely the same proportions that they exist when *combined* in nitric acid, and still be able to breathe the air thus made without harm; but a very little nitric acid taken into the lungs would cause death, and a few drops on the skin would make an ulcer or other bad sore. This shows very strikingly the difference between combination and mixture—a distinction which must always be borne in mind.

The oxygen in the air is called *free*, and so it is; that in water, and in iron-rust, and in carbonic acid, is *combined*, that is, united with other elements. When it is free, it enters into combination with other things generally, more easily than if it is in any combination. Now oxygen is the most abundant element; it is everywhere in the world—in the air, in the water, in the solid rocks, and in the soil. It is everywhere in a state of combination, except in the air, and will combine with every other element. Our own bodies, and those of the animals, and all plants, consist in great part of oxygen. It is therefore the most important, and is certainly the most interesting of all the elements. Wood, coal, tallow, oil, and all such things that we usually see burning, contain carbon, and all except anthracite coal and charcoal contain hydrogen also.

When any of these things burn, they combine with oxygen, and it is this very thing that makes them burn. The result of the burning is the formation of carbonic acid by the union of oxygen with the carbon, and the formation of water by union of oxygen with the hydrogen. Whoever wishes to see the water which is formed when a candle, or piece of wood, or piece of paper burns, has only to hold a cold plate, or piece of glass, over the flame, and the water will settle on it. Did you never see the little cloud of dew-like moisture which collects on a lamp chimney when it is first lit? This is the water from the flame which settles on the cool glass. As soon as the chimney is hot it will settle upon it no longer. The carbonic acid is a gas—and all that is formed when coal or wood, or candles, and such things burn, flies off and mixes with the air. We shall have something more to tell you next month about this carbonic acid gas.

The Tiger Lily and the Violet.

A correspondent of the *Agriculturist* sends the following story with a moral, to our young readers: "In the same bed with the lowly violets, and the modest lily of the valley, there grew a *Tiger Lily*, tall, showy, and soaring over these, as if despising them and glorying in its own large leaves and orange-colored spotted flowers. Some girls would notice *it* first of all, and say, "isn't that handsome?" "Why no," Lizzy would answer, "I think the tiger lily is coarse and gaudy. I never put it in a bouquet." Her mother was pleased with her choice, and drew a lesson from it something like the following: The lily of the valley and the violets are emblems of *modest beauty*, (they always have been, as I could show from the best poets,) charming every beholder all the more because they are so unpretending, almost trying to hide away from gazing eyes. Genuine modesty is always beautiful; and its retiring manner never fails to be admired by the true and the good. "When unadorn'd, adorn'd the most."

The tiger lily may represent those who are pleased with vain display, and who fail to gain the admiration they court. Flaunting colors are very offensive to good taste; they indicate such qualities of mind as a correct judgment would never admire. The aspiring lily towered above the garden fence; a gust of wind broke off the stalk, and there it hung for weeks, an unsightly emblem of fallen pride. The violets and the lily of the valley nestled safely at its root, while the storms rolled harmlessly over them. (See Matt. 23: 12) M.

Anagrams.

An Anagram is a certain transposition in the letters of any word or phrase, so as to make another phrase or word of pointed significance. They are sometimes quite interesting, and much amusement may be had in forming them. The following were received some time since:

Equestrianism—Quite near, Miss—[A very appropriate speech for a lady's companion in a horseback ride.]

Intemperate—Repeat "I ment." [Ah! yes; every intemperate man *ment* well enough.]

Degradation—To dread gain.

Incorrigibleness—Crinoline begs, Sir.

These from Miss MARY USHER.

Egotism—Mites go. *Atheist*—It hates. *Nectarines*—In ten acres.

From RUFUS W. WEEKS.

For the Guessers.

Rebusses.—We have here two Rebusses; one of them, No. 12, is a moral sentiment.

It will be found very hard to guess, we think, still it is perfectly legitimate, and if written out in various ways, may be guessed. Who will answer it?

No. 13 is a common proverb.

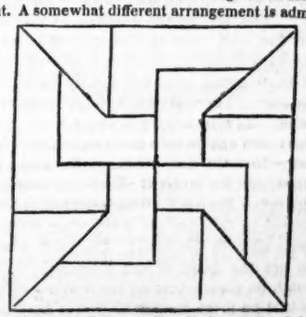
We think this will be found as easy to guess, as the other is hard. It conveys the lesson that, in whatever we do, we should in every way fit ourselves for its efficient performance; if it be right, being hindered neither by fastidiousness nor scruples.

14.—ARITHMETICAL PUZZLE.—In a square of 9 squares, place the 9 digits (1, 2, 3, 4, 5, 6, 7, 8, 9,) in such a way that in which ever way (up, down, sideways, and cornerways,) any row of 3 figures be added, the sum will be 15. One of our young readers sends us this puzzle in a little different form; he takes *half* of each figure, and of course, the sum of each row is 7½ instead of 15. This, he thinks, entitles it to be called an "original" puzzle, but he is mistaken. The puzzle is an old one to the older boys and girls, though it is doubtless new to the "little shavers."

Answers to Problems.

Answer to the Rebus No. 8 is founded upon the text in Gal. vi: 7: "Whatsoever a man soweth that shall he also reap"—but it properly reads: What a man soweth that he reapeth.

Answer to the Block Puzzle No. 9 is given in the following cut. A somewhat different arrangement is admissable.



Answer to the Enigma No. 10 is **TOBACCO.**

Correct answers have been received from Chas. S. Stimpson, 8, 10; C. H. Post, 9, 10; J. C. Bronson, 10; Oliver Combs, 10; Jacob Stephens, 10; B. C. Atwood, 8; G. F. Sly, 8, 10; Abigail E. Downes, 9; J. H. Goodrich, 10.

Market Review, Prices, etc.

AMERICAN AGRICULTURIST OFFICE,
New-York, Friday Morning, June 20, 1862.

1. TRANSACTIONS AT THE NEW-YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
28 days *this* m'th	594,000	4,280,000	1,920,000	43,900	110,000	473,000
25 days *last* m'th	371,000	518,000	390,000	53,000	101,000	176,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	
28 days *this* month	697,700	5,337,000	2,612,000	185,500	31,000	
25 days *last* month	411,000	698,000	1,306,000	154,000	99,000	

2. *Comparison with same time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
28 days 1862	594,000	4,280,000	1,920,000	43,900	110,000	473,000
24 days 1861	379,000	3,820,000	3,197,000	36,450	69,600	365,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	
28 days 1862	697,700	5,337,000	2,612,000	185,500	31,000	
24 days 1861	386,500	4,168,000	3,304,000	40,700	21,000	

3. *Exports from New-York, from Jan. 1 to June 13.*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1862	1,261,118	5,912,421	5,946,825	709,105	1,318	20,887
1861	1,075,156	7,270,995	4,606,395	81,262	1,000	98,533
1860	397,358	891,622	1,137,325	100	8,230	98,464

4. RECEIPTS AT CHICAGO, JAN. 1, TO JUNE 9.

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1862	572,706	3,236,143	5,762,469	384,344	400,383	723,821
1861	520,875	3,891,900	6,862,155	152,658	289,980	367,338
1860	201,239	1,587,135	6,569,931	59,790	184,636	508,987

5. *Stock in store at Chicago, June 14.*

	Flour.	*Wheat.*	*Corn.*	*Oats.*
1862	56,187	1,168,664	2,608,464	
1861	35,259	412,023	2,081,075	474,614

6. RECEIPTS AT MILWAUKEE, JAN. 1, TO JUNE 9.

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1862	216,987	4,339,883	104,464	68,493	51,980	122,823
1861	178,817	3,703,469	53,306	30,639	27,795	28,382

The foregoing tables exhibit the movements in Breadstuffs, both in New-York and the principal markets of the interior, so clearly as to call for no further explanation of that feature of the business....The trade of the month in New-York has been on an extensive scale, the export demand for Flour and Grain having been active, though at lower figures. Recent intelligence from England was less encouraging, in reference to the prospects of the growing crops, especially of Wheat. Hence, export buyers have been more eager to purchase, and though some changes in the value of Flour have been unfavorable to sellers, there has been a noticeable improvement in prices of most kinds of Grain, particularly of sound lots, suitable for shipment. Within a few days receipts have been quite light, and the tendency of the market has been upward, though the extreme firmness in freights has operated as a check on this movement. The inquiry from the regular home trade is fair. There is an entire absence of speculation, which is generally regarded as a most gratifying symptom. While the news from Western Europe speaks gloomily of crop prospects, advices from most parts of our own country are very encouraging, and this circumstance indicates that on our resources the people of Great Britain and France will have to draw freely for a supply of cheap food, for another year, in order to make good the probable deficiencies in their own supplies. Altogether, this month closes quite cheeringly for our agriculturists, much more so, indeed, than was anticipated at its commencement, and we congratulate our readers on the very agreeable change.....A further important rise has taken place in Cotton, which has been in good demand throughout the month.....Provisions have arrived quite freely and have declined, with a moderate inquiry.....Hay, Hops and Tobacco, have been in fair request at our revised quotations.....Rice has been moderately dealt in at uniform rates.....Wool has been in more demand and prices have favored sellers. The new clip is now arriving rather freely at various points in the interior, and is bringing very full prices, when in good order and properly packed. All wool put up for market should be tagged and well tied up with twine of medium size, but not too coarse. In packing Wool for market, put it in Burlap sacks and use five yards in the sack, the tare of which will be observed as three pounds. Such sacks are worth to the purchaser of wool nearly their cost for the purpose of re-sacking, whereas sheeting sacks, which are more commonly used, are worthless to re-sack in, and dealers will allow nothing for them. When there is an unusual number of buck fleeces in lots of Wool, dealers observe the same rules as to unwashed, viz.,—one third off.....The Secretary of the Vermont Agricultural Society, Daniel Needham, in his annual report, states that, "reasoning from analogy, the price of wool during the next few years must be high,"—basing his views on the opinion that the cotton crop will not be planted as extensively as it has been for some years past; and that the million of soldiers in the field will wear a third more clothing than they would in peaceful avocations....The transactions in other agricultural products have been on a moderate scale. The table of prices show the changes and the present rates.

CURRENT WHOLESALE PRICES.

	May 19.	June 20.
FLOUR—Super to Extra State	$4 35 @ 4 85	$4 10 @ 4 75
Superfine Western	4 35 @ 4 45	4 10 @ 4 20
Extra Western	4 50 @ 6 75	4 40 @ 6 75
Fancy to Extra Genesee	4 90 @ 6 75	4 80 @ 6 75
Super. to Extra Southern	4 85 @ 6 75	4 95 @ 6 75
RYE FLOUR—Fine and Super.	3 10 @ 4 25	2 70 @ 4 00
CORN MEAL	2 80 @ 3 20	2 90 @ 3 20
WHEAT—Canada White	1 23 @ 1 33	1 15 @ 1 25
Western White	1 22 @ 1 37	1 15 @ 1 35
All kinds of Red	90 @ 1 15	93 @ 1 20
CORN—Yellow	54 @ 56	55 @ 57
White	Nominal.	58 @ 60
Mixed	49 @ 51½	48 @ 54
OATS—Western	39 @ 41	43 @ 44½
State	41 @ 42	44½@ 45
RYE	75 @ 76	62 @ 75
BARLEY	68 @ 85	65 @ 75
HAY, in bales, per 100 lbs	65 @ 80	60 @ 75
COTTON—Middlings, per lb	27 @ 27½	31 @ 31½
RICE, per 100 lbs	6 50 @ 7 50	6 50 @ 7 50
HOPS, crop of 1861, per lb	12 @ 18	14 @ 20
FEATHERS, Live Geese, p. lb	34 @ 38	38 @ 42
SEED—Clover, per lb	Nominal.	7 @ 7¼
Timothy, per bushel	1 50 @ 1 75	1 75 @
SUGAR—Brown, per lb	6½@ 8¾	6½@ 8½
MOLASSES, New-Orleans, p.gl	40 @ 45	40 @ 45
COFFEE, Rio, per lb	19 @ 22	19 @ 21½
TOBACCO—Kentucky, &c, p.lb	7 @ 18	7¾@ 18
Seed Leaf, per lb	7 @ 25	7 @ 25
WOOL—Domestic fleece, p. lb	38 @ 52	40 @ 52
Domestic, pulled, per lb	34 @ 46	34 @ 44
TALLOW, per lb	8¾@ 9	8¾@ 9
OIL CAKE, per ton	33 00 @37 50	28 00 @35 00
PORK—Mess, per bbl	12 37 @12 50	10 80 @11 00
Prime, per bbl	9 75 @10 00	8 62½@ 8 87½
BEEF—Plain mess	12 50 @13 50	11 25 @13 00
LARD, in bbls., per lb	7¾@ 8½	7¼@ 8¾
BUTTER—Western, per lb	11 @ 17	9 @ 16
State, per lb	10 @ 17	10 @ 18
CHEESE	6 @ 8½	4 @ 7½
Broom Corn—per lb	5 @ 7	5 @ 7

EGGS—Fresh, per dozen	8 @ 10	9 @ 11
POULTRY—Fowls, per lb	9 @ 10	7 @ 8
Ducks, per pair	50 @ 75	50 @ 60
Geese, per pair	1 25 @ 1 50	1 00 @ 1 25
Turkeys, per lb	10 @ 12	9 @ 10
Dried Apples, per lb	5 @ 6	5 @ 5¾
Dried Peaches, per lb., peeled	20 @ 25	20 @ 25
Dried Raspberries, per lb	16 @ 17	16 @ 17
POTATOES—Mercers, p. bbl	1 75 @ 2 50	1 75 @ 2 50
Peachblows, per bbl	1 88 @ 2 13	1 88 @ 2 13
Nova Scotias—per bush	55 @ 60	55 @ 60
Bermuda—New, per bbl	5 25 @	5 25 @ 5 75
ONIONS—New Bermud, p. lb		2 @ 2½
TURNIPS—New White, 100 lb		1 75 @ 3 00
ASPARAGUS, per doz. bunch	1 00 @ 2 00	1 00 @ 1 50
LETTUCE, per dozen	25 @ 37	18 @ 25
RADISHES, per 100 bunches	50 @ 1 00	50 @ 75
STRAWBERRIES, p. 100 bask's.		1 25 @ 3 00
" Wilson's, per pint		3 @ 6
CHERRIES, per lb		7 @ 10
GOOSEBERRIES, per bushel		1 00 @ 1 50
GREEN PEAS, per barrel		2 25 @

N. Y. Live Stock Markets.—THE CATTLE MARKETS have been well-supplied, the past month, the average receipts being 4,246 per week, or 200 less than the previous month. Prices have fluctuated somewhat, advancing ½c. May 20th, when 3,400 were on sale, and declining as much the following week, with 5,366 beeves offered, again advancing ½c. with a light supply, remaining stationary the next week, and falling back ½c. at the last market June 17th, when near 4,500 head were in market. The extra fat cattle sold at 8¾c.@9c., good fat steers 8½c., fair quality, 8c., and poor 7c.@7½c. Average of all sold 8c., and none left over.

Veal Calves.—Receipts are falling off rapidly, averaging only 760 per week since last report. They are ½c. per lb. higher, the best bringing 5½c., fair veals 5c., and common ones 4c.@4½c. They sell readily.

Sheep and Lambs.—These are more abundant than last month, and sell briskly at former rates, or 4c.@4½c. ₱ lb. live weight for fair to good sheep; 5c. for those extra fat. Lambs are plenty and lower, selling at 7c.@7½c. per lb. live weight, or at an average of $4@$4½ per head. Receipts of both have averaged 7,722 per week.

Live Hogs.—Receipts are falling off with the advance of Summer. We have had but 9,951 per week since last reported, which are more than the demand warrants, and prices have continued to decline during the month, with some hogs left unsold each week. They are now worth 3½c.@3¾c. if corn fed and fat. Still-fed, 3c.

The Weather, during the past month has been variable, and the average temperature lower than usual at this season. The drouth prevailing when we closed our last notes was soon broken by copious rains and the crops have not since suffered in this vicinity for want of moisture. OUR DAILY NOTES, condensed, read: *May* 22, 23, clear, hot, with shower P. M. on 23d—24 to 26 fine, but cooler—27, N. E. rain storm all day, thoroughly soaking the earth—28, cloudy, light showers—29, 30, clear, fine—31, showery.——*June* 1, rainy day—2, 3, fine, warm, —4, showers A. M., ending in heavy N. E. rain storm; 5.18 inches rain fell—5, windy—6, clear—7, fine, rain at night—8, light rain—9, cool—10, cloudy, rain at night—11, clear A. M., cloudy P. M., rain at night—12, clear, fine— 13, hot, (86°) showers P. M.—14, clear, fine, N. E. rain storm at night—15, cloudy A. M., clear P. M.—16, 17, clear—18, cloudy, heavy rain at night—19, 20, clear, warm.

Rain Fall.—From the 15th of May, to the 15th of June, there were 8.86 inches of rain, which fell at 11 different times. The great rain of the 4th and 5th was almost unprecedented in this vicinity, 5 1-5th inches falling in 24 hours.

Reports on Crops, June 10, 1862.

(*See General Remarks and Reports on Special Crops on page* 200, *and Notes to Crop Reporters on page* 197.)

EXPLANATIONS TO THE READER. (Full details are given on the Blank Forms furnished to Reporters.)

The First Column gives the Counties from which the reports come. In many cases the territory reported upon extends over adjacent counties, and the figures apply to a larger territory than the county named, but sometimes to single townships only.

The Second Column gives the number of persons in each county or locality, the average of whose opinions are embraced in the single rows of figures, standing opposite in the same line. In several cases a whole County is represented by an officer of the Agricultural Society, who gives the summary of reports from assistants in each of the towns. *m* indicates that a large but indefinite number of persons joined in making the report.

The Third Column gives the names of the persons who received and distributed blanks, and collected and forwarded returns.

☞ *In all the reports the numeral* **10** *is taken as the standard for comparison,* thus:

Column A—10 means that the weather for a month previous to the date of the report was about as good as the average for other years, that is for growing crops and for general farm operations. Figures above or below **10** indicate the comparative propitiousness or unfavorableness of the weather.

Columns—B—E—H—In these **10** indicates that the amount of surface growing is about the same as *last year*. Each figure (or unit) above **10** means a tenth more of surface, and each unit below **10**, means one-tenth less. Thus, **5** means one-half of average surface—**15** means one and a half—**20** means double, and so on.

Columns C—F—I—L—N—P—S—In these columns **10** means that the average surface sown or planted or growing is about the same as the average for five years past. Each unit above or below **10** stands for an increase or decrease of one-tenth in the surface.

Columns D—G—K—M—O—R—T—U—V—In these columns **10** means that the *condition* and *prospect* on June 10th indicated an *average yield per acre.* Here also each unit above or below ten indicates the prospect of a yield a tenth above or a tenth below the average; thus, a half crop is indicated by **5**—a double crop by **20.** Some report fruit prospects at **100** to **300**, meaning that the promise is for ten to thirty times the average.

Blanks left in a column indicate that little or none of the crop is grown, or that it is too early to report upon it, or that the reporter could not estimate satisfactorily to himself. No reports have been received from some whose names are in the list, and who furnished reports last month.—For comments and reports on other crops see page 200.

Registered No.	*County and number of persons reporting from each.*	*Persons gathering and sending the reports.*	*Winter Wheat*			*Spring Wheat*			*Corn.*			*Rye*			*Oat.*			*Hay*			*Potatos*			*Fruit.*	
			Weather.	*Surface vs. 1861.*	*Surface vs. av'ge.*	*Prospects at date.*	*Surface vs. 1861.*	*Surface vs. av'ge.*	*Prospects at date.*	*Surface vs. 1861.*	*Surface vs. av'ge.*	*Prospects at date.*	*Surface vs. 1861.*	*Surface vs. av'ge.*	*Prospects at date.*	*Surface vs. 1861.*	*Surface vs. av'ge.*	*Prospects at date.*	*Surface vs. 1861.*	*Surface vs. av'ge.*	*Prospects at date.*	*Surface vs. 1861.*	*Surface vs. av'ge.*	*Prospects at date.*	*Apples.*	*Peaches.*
			A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	R	S	T	U	V			
	OHIO.																								
1	Washington	3 A. J. Hart	10	12	10	20	.	.	.	10	12	9	10	12	10	8	10	15	8	10	15	12			
2	Anglaize	1 Samuel Craig	11	12	12	12	.	.	.	8	9	9	10	10	11	10	10	11	10	11	100	100			
3	Miami	13 Enoch Jones	12	11	12	12	.	.	.	10	11	10	10	10	7	9	10	10	10	8	15	30			
4	Trumbull	1 L. P. Andrews	20	10	10	30	20	45	15	12	15	12	2	10	20	16	10	8	11	10	30	20			
5	Huron	5 C. B. Simmons	9	11	12	13	11	12	12	9	10	9	10	10	10	9	10	11	10	9	15	20			
6	Crawford	1 D. Robertson, jr	9	10	.	14	20	15	11	10	13	10	.	.	.	.	.	10	10	10	13	10	15	14	
7	Ashtabula	8 J. W. Kennedy	15	15	20	20	10	15	15	12	15	12	10	15	20	15	10	8	10	15	20	20			
8	Licking	1 G. W. Penny	15	12	12	20	.	.	.	15	12	12	.	.	.	5	15	12	15	10	15	50			
9	Portage	1 H. G. Spooner	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.			
10	Stark	13 Jacob Holl	11	12	10	13	30	30	11	10	10	9	.	.	.	9	11	10	12	11	9	15	20		
11	Paulding	21 J. N. Goodin	10	15	12	15	.	.	.	8	8	10	.	.	.	5	10	15	12	10	8	12	20		
12	Jackson	1 D. Mackley	10	12	15	18	.	.	.	12	15	10	10	12	7	10	10	15	12	12	20	25			
13	Richland	1 Joel Myers	10	12	12	14	20	20	10	13	13	10	10	10	8	9	10	11	10	10	15	20			
14	Fairfield	6 Thomas Cole	12	12	12	15	.	.	.	8	8	.	.	.	.	8	10	10	12	.	.	16	20		
15	Wyandot	1 J. Sears	.	10	13	13	.	.	.	10	12	8	10	12	8	10	12	8	10	14	13	12	8	15	20
16	Portage	Homer Mills	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.			
17	Ashland	3 R. M. Close	9	12	14	12	14	15	11	10	12	9	10	9	7	9	10	10	10	.	.	15	20		
18	Wayne	29 J. A. Brown	9	12	14	25	.	.	.	12	14	11	.	.	.	10	9	10	20	10	10	20	25		
19	Coshocton	7 J. B. Burt	10	14	12	15	.	.	.	10	9	10	8	10	9	9	10	12	11	10	15	12			
20	Tuscarawas	1 A. O. Miksch	11	12	13	15	.	.	.	12	13	10	.	.	.	10	15	15	15	12	14	15	20		
21	Erie	4 G. A. Ransom	8	13	10	10	15	20	9	9	8	10	10	10	10	11	12	11	10	20	50				
22	Washington	5 C. F. Hayward	10	16	16	20	.	.	.	8	10	10	.	.	.	9	7	10	10	8	10	20			
23	Morgan	1 Wm. Milhous	10	12	10	10	5	8	8	10	10	10	.	.	.	10	8	10	10	8	10	10	6		
24	Jefferson	1 John Edwards	10	12	12	15	20	20	5	10	10	10	5	10	10	5	12	8	10	10	10	10			
25	Portage	3 A. S. Plummer	17	11	10	21	99	99	11	10	10	14	16	13	10	11	9	13	12	11	11	100			
26	Morrow	14 G. W. Hiskett	12	10	12	14	15	50	12	13	13	12	10	14	10	12	12	15	10	12	15	100			
27	Ashtabula	1 C. G. Calkins	.	8	10	10	12	12	7	10	10	8	.	.	.	6	5	10	5	8	10	20			
28	Belmont	8 Edd McCue	.	7	11	10	15	.	.	.	12	14	9	.	.	9	8	10	6	10	12	5	10		
29	Belmont	11 Slater Brown	.	9	10	9	12	30	.	10	10	12	8	10	11	12	12	12	12	10	12	30			
30	Butler	3 Isaac Youmans	8	12	12	15	10	10	12	8	8	12	10	15	7	10	10	15	6	10	15	15			
31	Greene	5 J. Clay Cox	11	12	15	17	.	.	.	16	13	10	8	12	7	8	10	12	14	12	50	75			
32	Licking & Fk'n	5 James Strang	12	12	11	15	12	20	9	11	10	12	12	25	8	8	8	14	.	.	15	20			
33	Richland	1 R. S. McFarland	10	12	12	14	.	.	.	13	14	12	10	14	8	8	10	14	10	12	8	15			
34	Fayette	1 D. M. Hays	10	12	15	.	.	.	.	12	15	10	10	12	12	15	10	10	20	15	20	80			
35	Miami	1 B. F. Brown	10	12	10	12	.	.	.	9	9	10	9	10	9	9	10	7	10	10	10	12			
36	Butler	m John M. Millikin	15	12	12	12	.	.	.	10	10	9	10	10	12	10	10	11	10	10	12	12			

Reg	County.	No.	Chief Reporters.	Wr	Wint'r Wheat			Spring Wheat			Corn.			Rye.		Oat.		Hay	Pot-atos		Fruit. Ap	Ph
					A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	R	S	T	U	V
	INDIANA.																							
51	Benton	7	D. Campbell		10	14	30	15	10	3	12	7	7	14	8	12	4	10	15	13	10	10	12	..
52	Jay	1	Peter Walter		15	11	15	14	..	..	..	11	15	12	5	8	10	12	12	15	10	10	12	999
53	Hendricks	7	A. Whiteneck		8	11	16	11	..	..	..	9	10	10	..	..	10	8	11	12	..	..	14	11
54	Knox	4	Joel Wampler		6	12	13	11	..	..	..	9	8	7	10	10	5	5	10	10	9	8	10	4
55	Randolph	16	C. G. Puckett		10	10	13	15	..	..	..	10	10	10	..	..	10	9	10	12	10	9	18	30
56	Henry	18	T. B. Redding		15	12	15	15	..	..	..	10	12	12	..	..	5	10	12	12	10	10	14	15
57	Henry	5	Jehu Allen		10	12	14	13	..	..	..	12	13	10	..	..	9	10	10	15	10	8	10	12
58	Sullivan	*m*	Murray Briggs		9	11	13	10	..	..	..	10	12	10	11	12	8	12	12	11	..	..	12	13
59	Hendricks	1	Jacob Bader		9	10	12	8	..	..	..	11	15	10	..	..	6	8	12	12	10	10	10	10
60	Marshall	1	Fred. Hoover		10	13	13	8	..	..	..	12	15	8	..	..	10	8	10	10	10	10	15	100
61	Ripley	1	E. Saltmarsh		8	11	12	12	..	..	..	10	10	8	10	10	8	8	10	12	10	..	10	4
62	Henry		P. P. Prifner		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
63	Vermillion	4	S. Grondyke		7	12	15	9	..	..	..	8	8	10	12	20	6	7	12	20	..	..	16	10
64	Hendricks	1	A. Furnas		10	10	11	14	..	..	..	10	10	12	12	10	8	6	10	12	8	10	15	6
65	Ripley		John Bennett		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
66	Newton	11	Elam G. Smith		12	15	20	8	10	15	9	15	14	10	13	12	20	18	10	15	13	14	20	6
67	Grant	8	Wm. Thomas, jr.		11	11	15	15	..	..	..	12	13	15	..	..	10	12	12	20	13	10	15	30
68	Switzerland	7	W. H. Stow		10	12	14	15	..	..	..	10	12	7	8	10	10	12	7	8	10	8	20	15
69	Green	1	Wm. Hovis		8	10	12	12	..	..	..	10	11	9	13	12	7	9	10	12	10	11	10	8
70	Adams	5	P. N. Collins		15	12	14	11	..	..	..	8	12	10	..	..	8	10	10	10	12	12	20	56
71	Adams	5	John McConnel		12	15	20	15	..	..	..	12	15	10	10	10	12	12	20	20	10	10	30	100
72	Ripley	3	John Bennett		9	12	13	12	..	..	..	9	10	10	12	10	8	10	13	10	10	10	13	15
73	Elkhart	1	D. S. Kershner		8	12	15	5	2	1	11	10	12	8	10	5	8	10	15	8	11	10	1	..
74	Rush	1	S. M. Ball		12	9	10	12	..	..	..	11	9	12	..	..	8	8	12	10	10	12	15	20
75	La Porte	1	John Sutherland		5	12	15	9	12	10	10	6	9	8	..	..	5	8	12	10	10	..	8	6
76	Warwick	1	John J. Fleming		10	13	14	12	..	..	..	10	5	12	..	..	..	10	10	10	10	10	12	12
77	Johnson	21	Hurricane F's As'		12	12	9	14	..	..	..	9	9	9	10	10	7	6	12	15	10	10	20	12
78	Jay	11	W. J. Hesser		11	12	14	10	..	..	..	10	12	9	7	10	8	7	12	10	10	9	10	12
79	Decatur	1	John W. Smith		7	12	10	15	..	..	..	10	11	9	..	..	5	7	8	12	10	10	10	..
80	Vermillion	8	John Davis		10	10	12	5	10	..	..	10	12	10	15	10	8	10	15	5	20	10	8	5
81	Morgan	1	C. S. Hilbourn		15	12	..	11	12	..	..	15	15	10	12	10	11	10	12	12	15	10	10	4
82	Vigo	*m*	James M. Lyons		10	12	15	13	..	..	..	12	12	10	10	10	15	12	10	10	10	10	10	12
83	Randolph	9	L. M. Reeves		..	12	13	15	..	..	..	12	12	10	9	10	7	9	12	12	15	10	20	30
84	Hamilton	1	Andrew F. Evans		10	10	13	11	..	..	..	13	13	9	..	..	8	10	12	13	10	10	10	15
	ILLINOIS.																							
101	McDonough		Nelson Abbott		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
102	Coles		C. Boles		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
103	Saline	16	James M. Eaton		10	11	15	10	..	..	..	11	12	10	10	10	13	12	20	12	12	10	15	20
104	Jersey	1	A. Bacon		8	10	10	12	..	..	..	10	10	8	..	..	3	7	12	12	..	..	10	7
105	Jasper	1	Henry Griffing		7	15	15	12	..	..	..	10	13	8	12	12	8	8	10	15	10	10	10	10
106	Pike	1	Thos. Odlorne		10	12	10	7	5	8	5	9	9	8	..	..	..	..	10	10	10	10	10	10
107	Vermilion	7	H. C. Smith		12	12	10	13	7	7	8	10	12	10	..	..	8	8	10	14	10	10	15	10
108	Richland	1	H. A. Hunt		8	13	25	10	..	..	..	10	15	..	..	..	10	8	20	10	15	..	8	5
109	St. Clair	1	Edw. Flanagan		9	12	15	25	..	..	..	8	6	5	..	..	5	4	20	10	8	15	5	8
110	Marion		E. L. Merritt		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
111	DeKalb	1	C. W. Branch		..	10	10	12	12	12	8	..	9	5	..	..	10	10	10	13	..	..	10	..
112	Macoupin	5	Harry Grundy		11	13	12	20	5	5	7	9	9	10	..	..	3	9	14	12	..	..	10	15
113	Cumberland		J. E. Mumford		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
114	Putn'm& Mar'll	1	C. C. Hoagland		10	8	8	10	10	10	10	12	10	10	5	10	15	12	10	15	10	12	10	..
115	Woodford	1	James Freeman		8	10	9	5	8	9	8	9	9	9	8	10	8	9	8	12	8	10	6	8
116	Ogle	21	John Sharp		8	20	25	15	10	15	3	10	15	8	10	12	12	12	15	20	..	15	20	20
117	Vermillion	8	William Bowman		10	12	15	10	..	..	..	8	10	10	13	13	13	10	12	10	10	10	15	50
118	Kankakee	1	Democrat Office		8	12	10	10	11	12	..	16	15	..	..	..	10	10	14	..	..	..	12	16
119	Kendall	4	H. S. Hills		7	7	3	8	15	30	10	7	10	8	..	..	7	10	13	10	10	10	13	..
120	Crawford	1	Erastus Logan		12	15	20	20	..	..	..	8	10	15	30	20	10	15	15	15	12	10	5	5
121	Douglass	1	Caleb Bates		10	12	15	15	10	10	10	9	12	8	10	12	10	9	12	12	10	10	8	7
122	Mason	1	J. B. Wright		10	8	7	5	8	5	5	10	8	8	8	8	10	15	15	10	10	15	15	
123	Douglass	1	I. J. Halsted		7	10	8	6	..	..	..	10	12	8	10	12	8	10	12	12	..	..	12	10
124	Warren	1	A. H. Tracy		10	11	10	11	11	11	10	9	9	8	7	10	10	10	11	10	10	10	..	..
125	Mason	1	R. S. Lybarger		10	10	5	..	15	10	10	10	9	10	7	10	10	9	..	..	..	..	8	10
	WIS.																							
151	Sauk	1	Abljah Sweet		10	10	20	10	20	60	10	10	20	10	..	..	20	10	10	10	40	10	10	..
152	Dodge	1	D. L. Bancroft		10	..	..	..	10	15	..	10	8	7	..	..	10	9	12	11	..	..	15	..
153	Fond du Lac	12	E. Reynolds		8	..	..	..	11	14	10	10	8	5	..	..	9	8	13	15	10	8	12	..
154	Walworth	1	Geo. Cross		12	..	..	..	10	..	10	11	9	8	..	..	10	10	15	10	..	..	..	..
155	Green Lake		Green Lake		10	..	..	..	11	..	10	9	7	..	..	..	9	10	12	9	10	9	8	..
156	Jackson	*m*	C. T. Gansel		12	8	10	12	11	20	12	12	10	10	..	..	8	10	12	12	10	..	..	..
157	Dane	4	I. A. Kierstead		13	..	..	..	10	12	9	10	11	5	10	12	10	10	14	13	10	10	16	..
158	Trempleau	1	F. W. Newland		9	20	15	12	13	15	10	20	16	9	..	..	10	10	12	10	15	10	12	..
159	Grant	5	J. A. Curtis		10	10	5	15	..	8	10	10	11	13	10	10	13	12	10	20	13	10	10	5
160	Adams		S. W. Pierce		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
161	Badax		J. A. Somerly		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
162	Fon du Lac	4	Rev. A. A. Horton		12	..	..	..	..	10	11	9	9	10	8	..	..	10	9	10	12	11	..	14
163	Monroe	21	G. M. Robinson		10	11	15	20	11	20	11	15	15	5	10	15	10	12	10	15	15	10	20	..
164	Ray	1	O. D. Hawkins		8	10	10	8	7	7	8	8	8	8	10	10	10	9	9	8	8	10	5	12
165	Brown	12	———		7	..	..	..	5	20	10	..	..	..	..	10	10	5	..	30	15	2	..	15
166	La Fayette	1	J. C. March		..	..	..	..	3	..	7	9	..	5	..	..	..	8	..	9	..	8	5	..
167	Grant	13	Thos. Pendleton		8	..	..	..	11	16	5	10	17	8	..	..	12	8	13	12	10	10	9	..
168	Grant	4	S. D. Watkins		8	10	4	10	12	13	8	11	11	8	..	..	12	10	15	13	10	9	..	..
169	Oconto	5	D. B. Newton		10	8	12	10	12	15	10	10	11	10	..	..	10	10	15	15	..	..	..	..
170	Brown	7	———		7	..	..	..	15	20	10	7	20	..	10	10	20	10	30	15	15	..	15	..
	IOWA.																							
201	Jackson	*m*	H. Stephens		12	..	..	..	12	9	3	13	20	10	..	..	10	10	20	12	10	10	..	..
202	Clinton		C. W. Hatch		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
203	Cedar	41	J. A. Macy		8	10	3	12	10	23	7	11	20	8	..	..	15	10	10	15	8	10	12	..
204	Fayette	1	H. C. Wood		10	..	..	..	11	..	12	10	..	8	..	..	9	10	..	..	..	..	..	..
205	Ringgold	1	L. S. Beall		8	15	15	10	15	10	10	15	8	15	12	15	15	10	..	10	20	10	10	10
206	Delaware	*m*	L. McCreery		9	13	16	14	14	17	7	11	13	12	..	..	8	8	8	8	..	..	14	..
207	Pawshiek	1	Erastus Snow		14	12	30	15	9	50	10	18	80	8	40	15	..	10	..	15	..	10	20	..
208	Marion	2	B. C. Bellamy		10	10	15	20	9	12	11	12	14	10	15	13	13	10	14	12	..	..	..	..
209	Cedar	21	J. C. Alexander		8	..	..	..	11	13	10	12	15	5	..	..	10	10	12	15	10	8	..	..
210	Madison		J. Carman		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
211	Scott		T. F. C. Schmidt		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
212	Buchanan	*m*	H. C. Heminway		10	..	..	..	11	12	11	10	12	10	9	13	11	10	16	10	12	10	..	..
213	Howard	1	C. A. Marshall		12	..	..	..	14	14	10	18	25	12	..	..	30	12	..	..	12	..	7	..
214	Lucas	6	M. Moorhead		12	..	..	..	9	13	10	13	15	11	..	..	12	11	..	..	9	11	..	..
215	Page	61	S. H. Kridelbaugh		9	11	20	10	11	99	10	10	70	10	10	11	40	11	9	10	50	11	10	10
216	Linn	3	F. H. Williams		5	..	..	..	11	18	..	11	13	..	..	..	10	10	..	..	10	10	..	..
217	Clayton	1	Wm. A. Penfield		9	..	..	..	12	20	15	12	20	10	..	..	15	10	16	10	18	15	..	..
218	Madison	3	Josiah Carmean		10	8	10	15	8	10	10	12	10	8	5	15	15	10	20	12	..	..	..	..
219	Scott	1	J. F. C. Schmidt		11	..	..	..	11	15	10	11	14	10	..	..	10	..	11	12	10	..	11	..
220	Wayne	20	J. S. Whittaker		..	11	12	9	8	8	9	8	9	7	..	..	10	9	10	11	8	10	..	..
221	Delaware	1	J. C. Skinner		9	12	15	10	13	17	8	10	15	9	12	10	9	9	9	15	10	12	10	12
222	Linn	*m*	Isaac Willard		9	..	..	..	11	12	7	11	12	11	10	10	9	9	12	12	9	9	12	8
223	Linn	3	H. C. Raymond		8	..	..	..	12	16	7	10	14	7	12	9	10	9	15	12	11	10	20	..
224	Dallas	9	H. E. Belden		9	..	..	..	9	12	12	11	13	10	..	..	13	10	12	13	10	11	11	11
	MINN.																							
251	Hennepin	1	Jonas H. Howe		12	..	..	..	11	18	8	15	10	10	3	10	15	10	..	..	10	10	..	..
252	Fillmore	7	A. Gould		15	10	..	16	12	20	16	13	15	10	11	13	12	10	12	10	12	12	..	..
253	Dodge	3	T. G. Patch		12	..	..	..	15	40	12	12	30	12	..	..	20	12	20	12	15	10	..	..
254	Olmstead	1	R. H. Talbot		11	..	..	..	13	25	11	13	20	10	10	10	20	10	..	..	20	10	..	..
255	Winona	21	S. R. Crittenden		8	13	20	21	11	15	12	12	9	9	7	9	15	12	12	8	13	9	10	9
256	Sibley	1	J. U. Green		9	..	..	..	15	35	10	18	30	8	8	15	20	12	..	..	25	5	..	..
257	Nicollet	5	Wm. H. Sigler		15	20	30	20	15	30	15	..	..	..	20	20	20	20	..	..	20	7	..	..
258	Fillmore	1	A. Hitchcock		..	..	..	..	14	30	11	12	20	8	..	..	20	10	..	..	..	..	..	..
259	Olmsted	1	A. Smith		10	..	..	..	11	15	10	12	14	10	10	10	13	10	10	10	12	12	12	15
260	Wabasha	1	Wm. McLeod		8	..	..	..	15	20	8	10	12	10	..	..	14	8	13	8	13	10	..	..
261	Blue Earth	1	James Miller		12	..	..	..	15	40	12	8	5	10	20	10	30	10	..	..	10	..	..	..
	MO.																							
300	Maries	10	W. I. Meeder		8	9	10	7	11	15	6	10	12	8	10	9	9	4	10	8	11	10	10	8
301	Mississippi	1	Geo. Whitcomb		11	7	12	13	10	10	12	5	7	8	10	12	8	10	5	12	5	12	15	15
302	Franklin	1	Charles E. Ross		8	10	12	10	..	..	..	10	10	8	..	..	10	8	10	10	..	..	10	12
303	Greene	2	A. C. Graves		10	3	5	10	..	..	..	4	6	10	3	5	4	10	8	10	5	10	10	12
	KY.																							
326	Spencer	8	Milton McGrew		9	10	11	7	..	..	..	8	10	6	6	7	9	5	12	10	11	8	4	5
327	Adair	11	R. B. Dahoney		8	8	10	4	..	..	..	7	9	8	10	5	9	2	10	10	10	8	10	12
	MICH.																							
351	St. Joseph	6	O. W. Beall		5	10	10	5	..	..	..	10	10	9	..	..	10	10	11	10	11	10	10	20
352	Berrien	1	A. Bennett		10	10	12	10	..	..	..	12	10	12	..	..	8	10	10	10	10	10	3	2
353	Clinton	1	H. C. Hodge		8	12	20	10	10	15	10	12	15	10	..	..	15	10	15	8	15	10	12	12
354	Jackson		L. D. Watkins		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
355	Sanilac	16	C. Waterbury		6	20	30	7	5	8	8	..	..	..	10	15	8	15	7	10	5	..	10	..
356	Calhoun	6	C. M. Keep		8	10	12	9	..	..	..	10	11	9	..	..	10	9	12	9	9	10	9	50
357	Clinton	22	John Watling		5	20	10	25	15	40	10	10	50	10	10	15	12	10	30	15	20	..	20	15
358	Lenawee	11	Rufus Baker		8	11	11	5	..	..	..	10	10	8	..	..	10	10	10	10	9	..	10	50
359	Ionia	5	D. T. Lawrence		8	13	15	10	9	10	9	11	12	10	8	11	12	11	16	11	12	..	9	5
360	Washtenaw	11	A. Gillet		10	12	11	13	..	..	..	10	13	8	..	..	8	10	18	10	..	..	20	40
361	Ionia	7	Charles Goodrich		9	13	16	8	..	..	..	10	12	10	..	..	12	10	13	7	..	..	15	40

Reg	County.	No.	Chief Reporters.	Wr	Wint'r Wheat			Spring Wheat			Corn.			Rye.		Oat.		Hay	Pot-atos		Fruit. Ap	Ph
					A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	R	S	T	U	V
	N. Y.																							
401	Chautauqua		John J. Phelps		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
402	Orleans	11	Peter Ferris		6	12	23	8	10	17	7	8	8	7	..	..	8	6	10	6	10	7	11	14
403	Lewis	1	John F. Bates		7	..	..	..	9	10	6	..	..	..	..	..	10	6	10	6	10	..	..	..
404	Wyoming	11	Linus De Wolfe		8	15	8	15	12	10	12	10	10	10	..	..	10	8	10	10	10	8	20	50
405	St. Lawrence	*m*	J. S. Wallace		15	..	..	..	11	13	10	12	14	9	8	7	12	10	10	10	5	7	10	..
406	Delaware	1	Levi Miles		10	7	10	6	8	10	6	10	12	8	13	5	9	7	13	8	12	..	3	..
407	Niagara	1	J. Q. Adams		5	10	10	8	..	..	..	..	..	..	..	..	..	..	..	..	10	3	15	20
408	Suffolk	1	G. E. Woodruff		8	12	10	15	5	8	10	12	10	10	11	15	15	10	12	10	15	10	12	10
409	Fulton		Geo. W. Heaton		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
410	Niagara	1	A. E. Raymond		8	15	40	10	7	15	6	12	10	8	..	..	10	8	8	9	15	9	8	30
411	Oswego		D. Farling		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
412	Chenango	4	H. T. Richmond		12	12	20	8	5	4	8	10	10	8	10	10	8	10	10	8	10	10	100	..
413	Otsego	4	H. T. Richmond		12	12	20	8	5	4	8	10	10	8	10	10	8	10	10	8	10	10	100	..
414	Wayne		A. M. Richardson		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
415	Cayuga		B. W. Thompson		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
416	Chautauqua	1	H. A. Whittemore		15	10	10	15	13	15	12	15	10	15	..	..	20	15	10	12	12	10	20	30
417	Ontario	1	E. A. McKay		10	12	20	13	8	5	12	12	12	10	7	10	10	12	12	13	12	10	13	20
418	Saratoga	13	J. C. Rousa		10	12	12	8	12	12	8	12	12	10	8	12	8	10	8	8	15	15	15	..
419	Onondaga	4	D. G. Newell		12	13	14	9	..	..	..	12	..	10	7	8	12	10	10	7	10	10	100	..
420	Queens	*m*	Farmer's Club		10	10	11	7	..	..	..	10	10	9	13	13	10	9	12	11	9	10	15	..
421	Essex	1	Jos. E. Smith		8	10	10	8	8	10	5	10	10	5	10	8	8	5	15	5	10	10	20	..
422	Suffolk	7	Watson Wilson		13	15	30	14	10	35	13	20	30	8	30	13	20	8	15	10	30	12	30	..
423	Wyoming	1	D. T. Griffin		8	7	8	13	8	10	8	..	..	..	..	..	10	8	11	9	..	..	11	..
424	Westchester	4	James Wood		9	10	10	12	10	10	15	11	12	9	10	15	10	14	10	13	10	10	20	25
425	Allegany		J. H. Weaver		..	..	..	..	9	..	11	7	..	..	.

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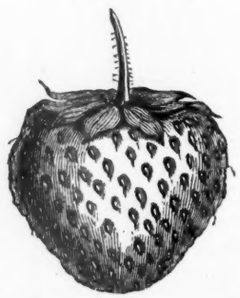

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EXCLUSIVELY TO DEALERS IN SEEDS,
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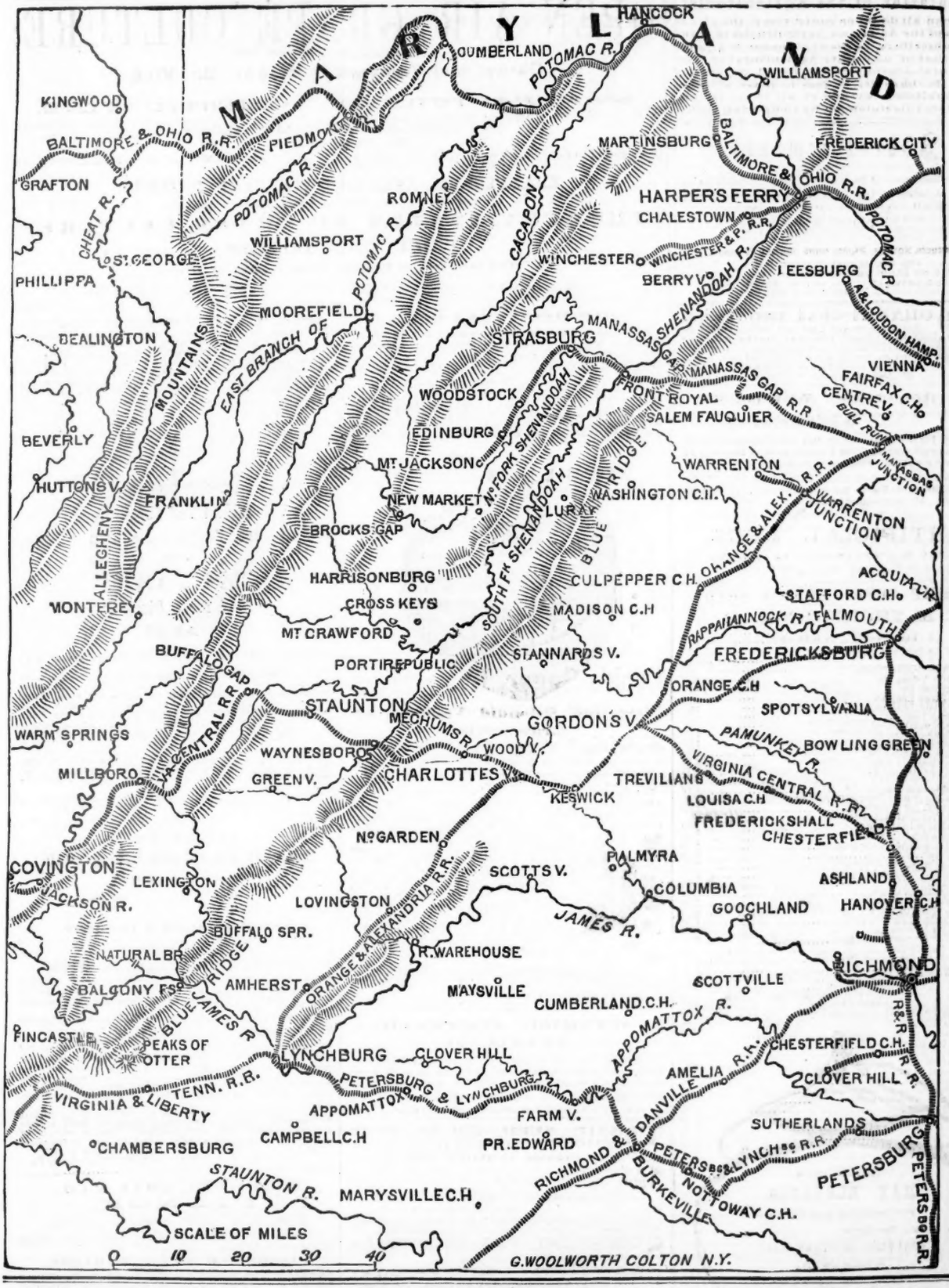

VALLEY OF THE SHENANDOAH, Va., Together with the country lying between the Blue Ridge and tide water, showing Richmond, Fredericksburg, Petersburg, Staunton, and Lynchburg, with their lines of communication,—already the scene of some of the most heroic and important acts of the Great Rebellion, and of present operations. By favor of the New-York Tribune we are enabled to present our readers this map.

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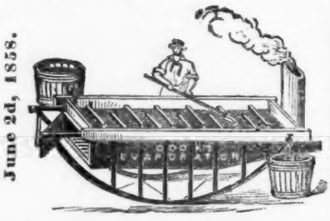

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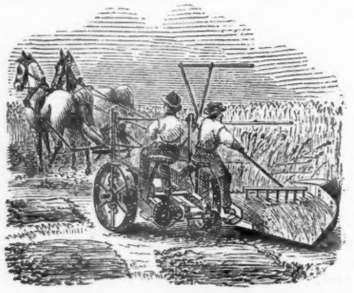

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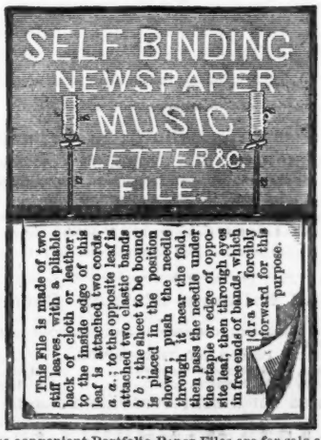
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